

REPORT NO. 207-KAR-04-001

**SAFETY COMPLIANCE TESTING
FOR FMVSS 207**

SEATING SYSTEMS

2004 BMW
MINI COOPER
2-DOOR COUPE

NHTSA NO. C40501

PREPARED BY:
KARCO ENGINEERING, LLC
9270 HOLLY ROAD
ADELANTO, CALIFORNIA 92301



August 31, 2004

FINAL REPORT

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Prepared by:

Math A. Ivory

Mr. Matthew A. Ivory, Project Engineer
KARCO Engineering, LLC

Date: 09/10/04

Reviewed by:

Jerry L. Kratzke

Mr. Jerry L. Kratzke, Director of Operations
KARCO Engineering, LLC

Date: 09/10/04

Approved by:

Frank D. Richardson

Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC

Date: 09/10/04

FINAL REPORT ACCEPTED BY:

Accepted By:

Edward E. Elman

Acceptance Date:

9/16/04

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SECTION 1
PURPOSE OF COMPLIANCE TEST

1. PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2004 BMW Mini Cooper 2-Door Coupe, manufactured by Bayerische Motoren Werke Corporation, to determine compliance with FMVSS 207, "Seating Systems". The purpose of this standard is to reduce the number of deaths and injuries that may be caused by the failure of seats, their attachment hardware, and their installation when said failure results from the forces on the seat in a vehicle impact.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-207-09, dated June 18, 1992, and corresponding KARCO Engineering, LLC test procedure KTP-207, dated August 2, 2002. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as follows:

- Section 2 - Compliance Test Procedure and Data Summary
- Section 3 - Compliance Test Data
- Section 4 - Noncompliance Data (if applicable)
- Appendix A - Photographs
- Appendix B - Data Plots
- Appendix C - Test Equipment List and Calibration Information

SECTION 2
COMPLIANCE TEST PROCEDURE and DATA SUMMARY

2. COMPLIANCE TEST PROCEDURE AND DATA SUMMARY

A 2004 BMW Mini Cooper 2-Door Coupe was subjected to FMVSS 207 compliance testing on August 20 through August 30, 2004. All tests were conducted at KARCO Engineering, LLC in Adelanto, California. Summary data is shown on Data Sheet No. 2. The following tests were performed:

- Receiving inspection
- Aft moment tests on front seat backs
- Forward load on front seat backs
- Aft load tests on front seat frames and adjusters
- Forward load tests on front seat frames and adjusters
- Forward load tests on front set frames and adjusters, including FMVSS 210 Loads
- Forward load test on rear seat cushions and seat backs
- Aft load test on rear seat cushions and seat backs

The tests were conducted per the FMVSS 207 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

2.1 Test Vehicle Inspection. The test vehicle was inspected to verify that all seat, restraint systems and seat belt assembly anchorage systems are complete and the seat adjusting mechanisms are working properly.

2.2 Test Vehicle Preparation and Pre-test Measurements. The test vehicle was securely mounted to the test fixture and connected to the appropriate number of hydraulic actuators. Lateral spacing of the individual seat anchorages were measured and all other angular and dimensional measurements were verified to be in compliance with the requirements of the subject safety standards. The components were weighed and their centers of gravity determined.

2.3 Static Load Tests-General Performance Requirements.

When tested in accordance with S5, each occupant seat, other than a side-facing seat or a passenger seat on a bus, shall withstand the following forces:

- (a) In any position to which it can be adjusted — 20 times the weight of the seat applied in a forward longitudinal direction;

(Continued on next page)

2. (Continued)

- (b) In any position to which it can be adjusted — 20 times the weight of the seat applied in a rearward longitudinal direction;
- (c) For a seat belt assembly attached to the seat — the force specified in subparagraph (a), if it is a forward facing seat, or subparagraph (b), if it is a rearward facing seat, in each case applied simultaneously with the forces imposed on the seat by the seat belt assembly when it is loaded in accordance with section S4.2 of Federal Motor Vehicle Safety Standard No. 210; and
- (d) In its rearmost position — a force that produces a 3,300 inch-pound moment about the seating reference point (SRP) for each designated seating position (DSP) that the seat provides, applied to the upper cross-member of the seat back or the upper seat back, in a rearward longitudinal direction for forward-facing seats and in a forward longitudinal direction for rearward-facing seats.
- (e) To meet FMVSS 210 requirements, the anchorages, attachment hardware, and attachment bolts for all Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208) shall withstand 3,000 pound forces when tested in accordance with S5.2.

SECTION 3
COMPLIANCE TEST DATA

3. COMPLIANCE TEST DATA

The results of FMVSS 207 compliance tests that were conducted on the 2004 BMW Mini Cooper 2-Door Coupe on August 20, through August 30, 2004, to determine compliance with FMVSS 207, "Seating Systems" are presented in this section. No performance failures were identified for the vehicle tested.

DATA SHEET NO. 1
TEST VEHICLE RECEIVING INSPECTION

VEHICLE			
YEAR	2004	MAKE	BMW
MODEL	Mini Cooper	BODY STYLE	2-Door Coupe
NHTSA NO.	C40501	VIN	WMWRC33464TC49566
BUILD DATE	10/03	TEST DATE	
TEST LABORATORY		KARCO Engineering, L.L.C.	

1. First compliance test by laboratory for this vehicle is S207 test.

	Yes	<input checked="" type="checkbox"/>	No (Go to item 2)
<input checked="" type="checkbox"/> 1.1			Label test vehicle with NHTSA Number
<input checked="" type="checkbox"/> 1.2			Verify all options on the "window sticker" are present on the vehicle
<input checked="" type="checkbox"/> 1.3			Verify tires and wheel rims are new and the same as listed
<input checked="" type="checkbox"/> 1.4			Verify there are no dents or other interior or exterior flaws
<input checked="" type="checkbox"/> 1.5			Verify the glove box contains an owner's manual, warranty document, consumer information, and extra keys
<input checked="" type="checkbox"/> 1.6			Verify the vehicle is equipped with the proper fuel filler cap
<input checked="" type="checkbox"/> 1.7			If the vehicle has been delivered from the dealer, verify the vehicle has been properly prepared and is in running condition
2. Verify seat adjusters are working

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
-------------------------------------	-----	--------------------------	----
3. Verify there is a seat belt at each seating position

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
-------------------------------------	-----	--------------------------	----
4. Without disturbing the integrity of each seat belt and anchorage, verify that each seat belt is attached to the anchorage. For seat belts that are attached to the seat, also verify the seats are attached to the seat anchors and the seat anchors are attached to the vehicle.

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
-------------------------------------	-----	--------------------------	----

RESULTS OR RECEIVING INSPECTION:

PASS --	<input checked="" type="checkbox"/>
FAIL --	<input type="checkbox"/>
CONDITIONAL --	<input type="checkbox"/>

REMARKS:

RECORDED BY: <u>MARK A. KRATZKE</u>	DATE: <u>08/20/04</u>
APPROVED BY: <u>MATTHEW A. IVORY</u>	DATE: <u>08/20/04</u>

DATA SHEET NO. 2
SEATING SYSTEM TEST RESULTS

VEHICLE			
YEAR	2004	MAKE	BMW
MODEL	Mini Cooper	BODY STYLE	2-Door Coupe
NHTSA NO.	C40501	VIN	WMWRC33464TC49566
BUILD DATE	10/03	TEST DATE	
TEST LABORATORY	KARCO Engineering, L.L.C.		

LEGEND: Wa - Weight of Seat Assembly
 Wb - Weight of Seat Back
 Wc - Weight of Seat Cushion
 Z - Distance from Seat SRP to Uppermost Crossmember = 16.4 "

FOR FRONT BUCKET SEATS - - LEFT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	Wb = 16	20 x Wb = 320	319.0	N/A	N/A
Seat Assy.	Forward	Wa = 46	20 x Wa = 920	918.7	N/A	PASS
	Rearward	Wa = 46	20 x Wa = 920	915.2	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	198.9	3261.9	PASS

FOR FRONT BUCKET SEATS - - RIGHT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	Wb = 16	20 x Wb = 320	319.3	N/A	N/A
Seat Assy.	Forward	Wa = 46	20 x Wa = 920	919.0	N/A	PASS
	Rearward	Wa = 46	20 x Wa = 920	909.8	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	195.7	3209.4	PASS

(Continued on next page)

DATA SHEET NO. 2 (Continued)

FOR FRONT BUCKET SEATS - - COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Driver Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2971.9	PASS
Driver Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2986.5	PASS
Center Lap Belt	Forward	N/A	5,000 lbs, -10, -50	N/A	N/A
Passenger Lap Belt	Forward	N/A	3,000 lbs, -10, -50	2992.0	PASS
Passenger Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	2978.1	PASS
Driver Seat Assembly	Forward	Wa = 46	20 x Wa = 920	911.9	PASS
Passenger Seat Assembly	Forward	Wa = 46	20 x Wa = 920	916.9	PASS

LEGEND: Wa - Weight of Seat Assembly

Wb - Weight of Seat Back

Wc - Weight of Seat Cushion

Z - Distance from Seat SRP to Uppermost Crossmember = N/A

FOR REAR SEATS - -

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Cushion	Forward	Wc = 10	20 x Wc = 200	198.8	N/A	PASS
Left Back	Forward	Wb = 16	20 x Wb = 320	310.2	N/A	PASS
Right Back	Forward	Wb = 16	20 x Wb = 320	312.4	N/A	PASS
Cushion	Aft	Wc = 10	20 x Wc = 200	187.7	N/A	PASS
Left Back	Aft	Wb = 16	20 x Wb = 320	319.4	N/A	PASS
Right Back	Aft	Wb = 16	20 x Wb = 320	315.5	N/A	PASS

COMMENTS:

RECORDED BY: MARK A. KRATZKE

DATE: 08/30/04

APPROVED BY: MATTHEW A. IVORY

DATE: 08/30/04

DATA SHEET NO. 3
SEAT BACK ANGLES

VEHICLE			
YEAR	2004	MAKE	BMW
MODEL	Mini Cooper	BODY STYLE	2-Door Coupe
NHTSA NO.	C40501	VIN	WMWRC33464TC49566
BUILD DATE	10/03	TEST DATE	08/20/04 – 08/30/04
TEST LABORATORY	KARCO Engineering, L.L.C.		

LAP BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE HORIZONTAL	MEASURED ANGLE		DOES BELT SECURELY FIT ON PELVIS?
			I/B	O/B	
FRONT	Left	30 to 75 degrees	46	57	YES
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	44	52	YES
REAR	Left	30 to 75 degrees	35	40	YES
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	48	46	YES

SHOULDER BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE OR BELOW HORIZONTAL	MEASURED ANGLE
FRONT	Left	0 – 80 degrees above	N/A
		0 – 40 degrees below	9°
	Right	0 – 80 degrees above	N/A
		0 – 40 degrees below	10°
REAR	Left	0 – 80 degrees above	9°
		0 – 40 degrees below	N/A
	Center	0 – 80 degrees above	N/A
		0 – 40 degrees below	N/A
	Right	0 – 80 degrees above	8°
		0 – 40 degrees below	N/A

RECORDED BY: MARK A. KRATZKE DATE: 08/20/04

APPROVED BY: MATTHEW A. IVORY DATE: 08/20/04

DATA SHEET NO. 4**REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING**

The following vehicle has been subjected to compliance testing for FMVSS No. 207

VEHICLE			
NHTSA NO.	C40501	TEST DATE	08/20/04 – 08/30/04
CONTRACT NO.	DTNH22-01-C-31025	VIN	WMWRC33464TC49566
SEAT CONFIGURATION			
VEHICLE OR SEAT MANUFACTURER			
TEST LABORATORY	KARCO Engineering, L.L.C.		

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

TEST VEHICLE INFORMATION			
Manufacturer	BAYERISCHE MOTOREN WERKE	VIN	WMWRC33464TC49566
Manufacturing Date	10/03	Delivery Date	03/06/04
Dealer	BOB SMITH BMW	NHTSA No.	C40501
Odometer Reading (mi.)	34	Fuel Type	GAS
Engine Displacement	1.6	Cylinders	4
Transmission	STANDARD	Final Drive	FRONT
Engine Placement	TRANSVERSE	Color	BLACK
Tire Press./Max. Cap. Front	40	Cold Tire Press.	32
Tire Press./Max. Cap. Rear	40	Cold Tire Press. Rear	32
Recommend Tire Size	175/65R15	Type of Spare	T115/70 R15
Tire Size on Vehicle	175/65R15	Manufacturer	CONTINENTAL
GVWR	3340	Cargo Capacity	1120
GAWR Front	1918	GAWR Rear	1609
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	NO
Power Windows	YES	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	YES
Driver Airbag	YES	Passenger Airbag	YES

Test Vehicle Condition: **FRONT OF VEHICLE WAS REMOVED, SEATS WERE TESTED.**

RECORDED BY: **MARK A. KRATZKE**

DATE: **08/30/04**

APPROVED BY: **MATTHEW A. IVORY**

DATE: **08/30/04**

APPENDIX A
PHOTOGRAPHS

A-1

2007 KIA NISSAN 400



Figure A-1 Left Front (as Received)

A-2

2007 KIA NISSAN 400



Figure A-2 Left Side (as Received)

A-3

207-6029-04-001



Figure A-3: Right Rear (as Received)

A-4

207-6029-04-001



Figure A-4: Right Side (as Received)



Figure A-1. Vehicle Certification Label

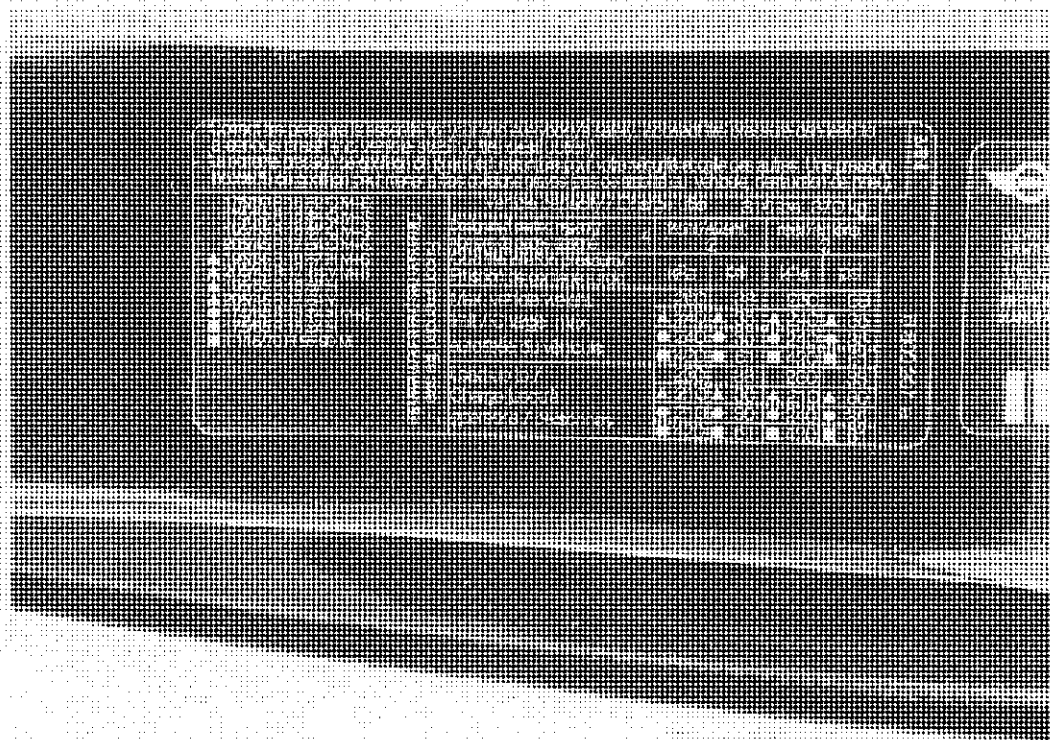


Figure A-3. Vehicle Type Label

A-7

207-005-04-001

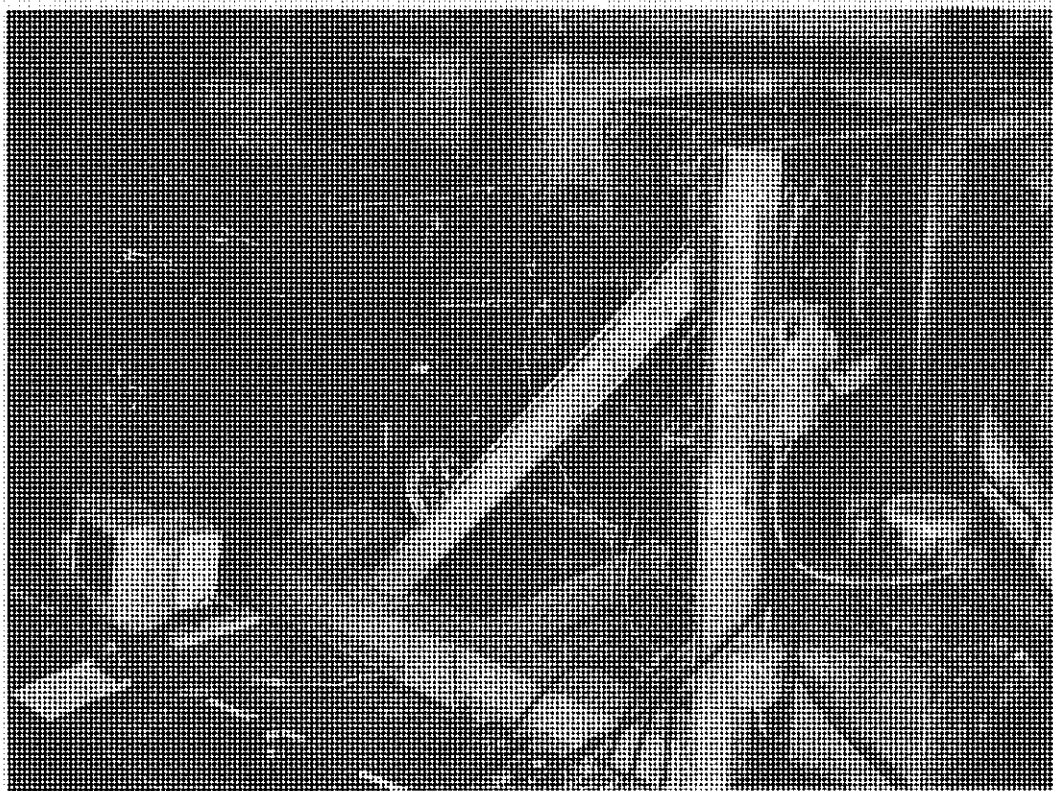


Figure A-7: Vehicle Mounted in Test Fixture

A-8

207-005-04-001

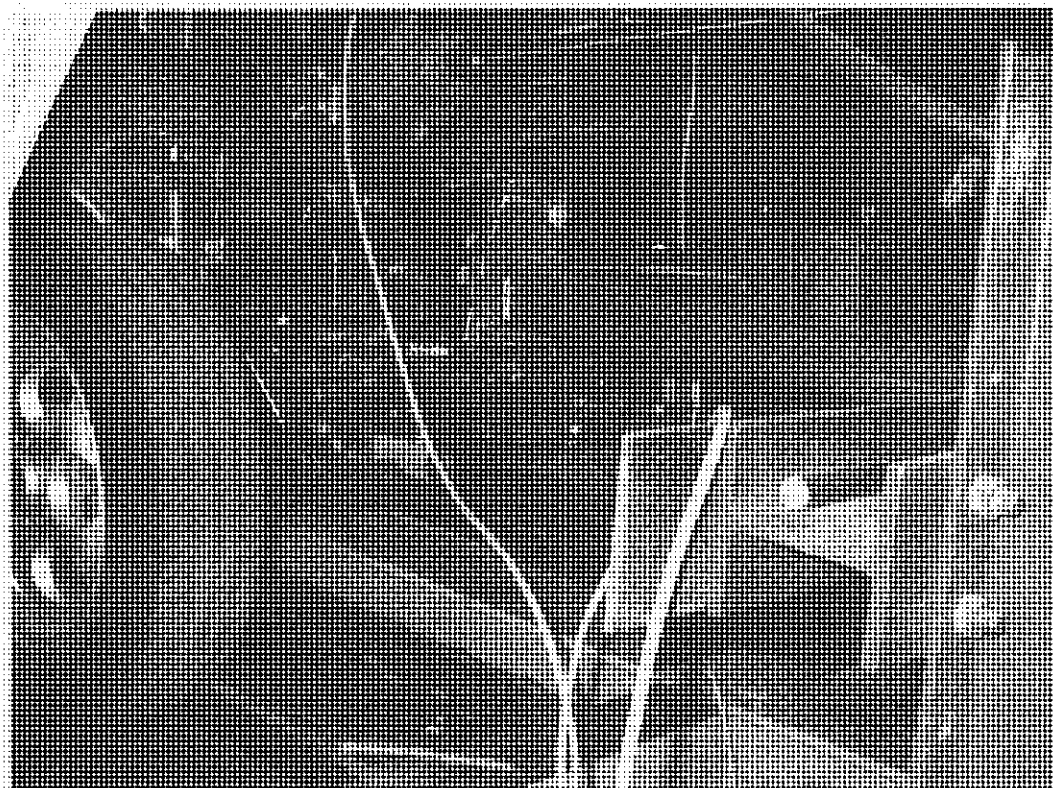


Figure A-8: Vehicle Mounted in Test Fixture

A-9

207-CAF-24-001

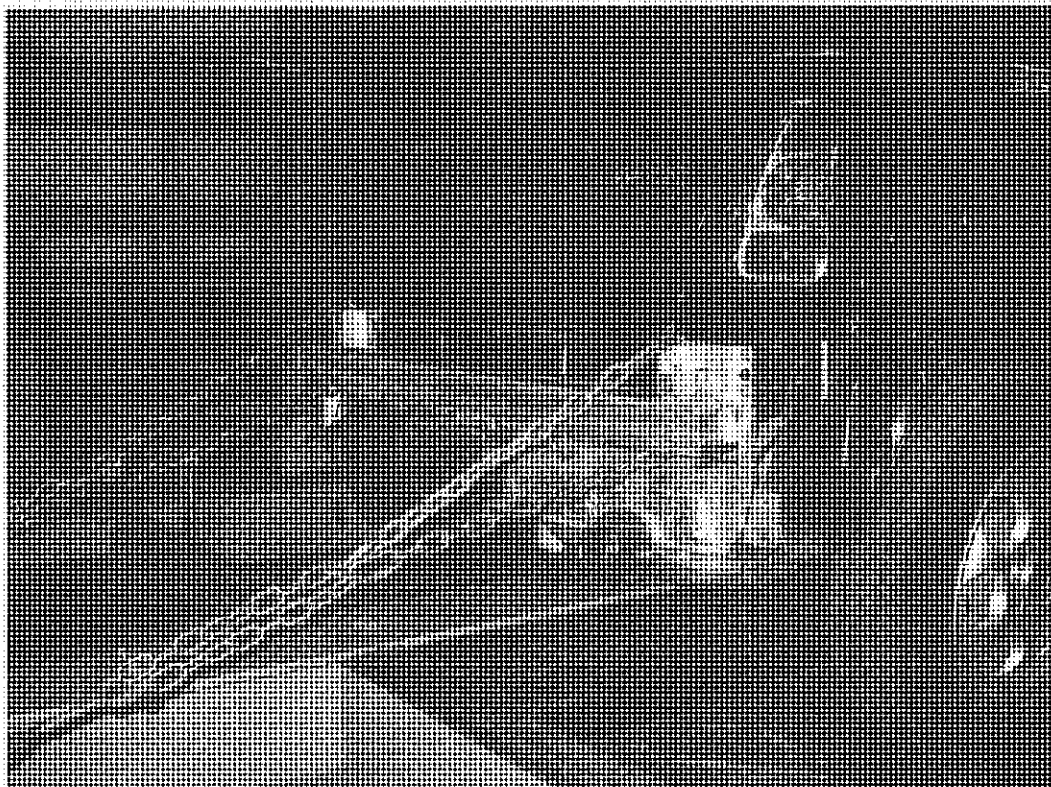


Figure A-9. Vehicle Mounted in Test Fixture

A-10

207-CAF-24-001

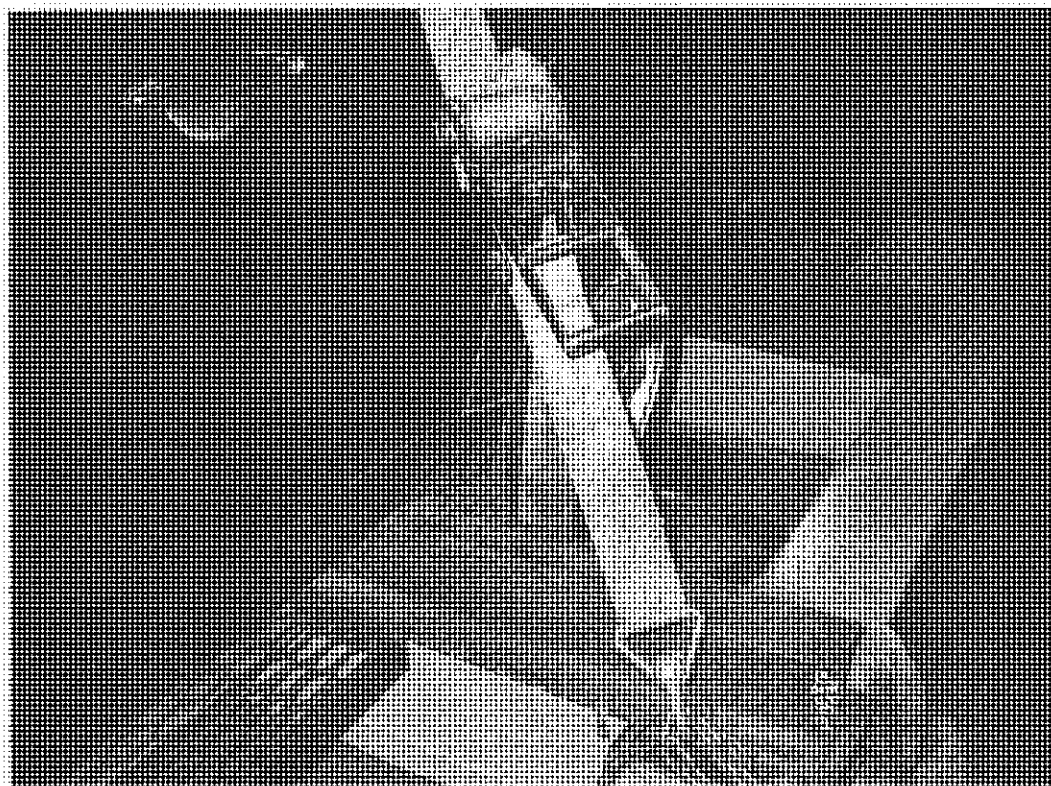


Figure A-10. Vehicle Mounted in Test Fixture

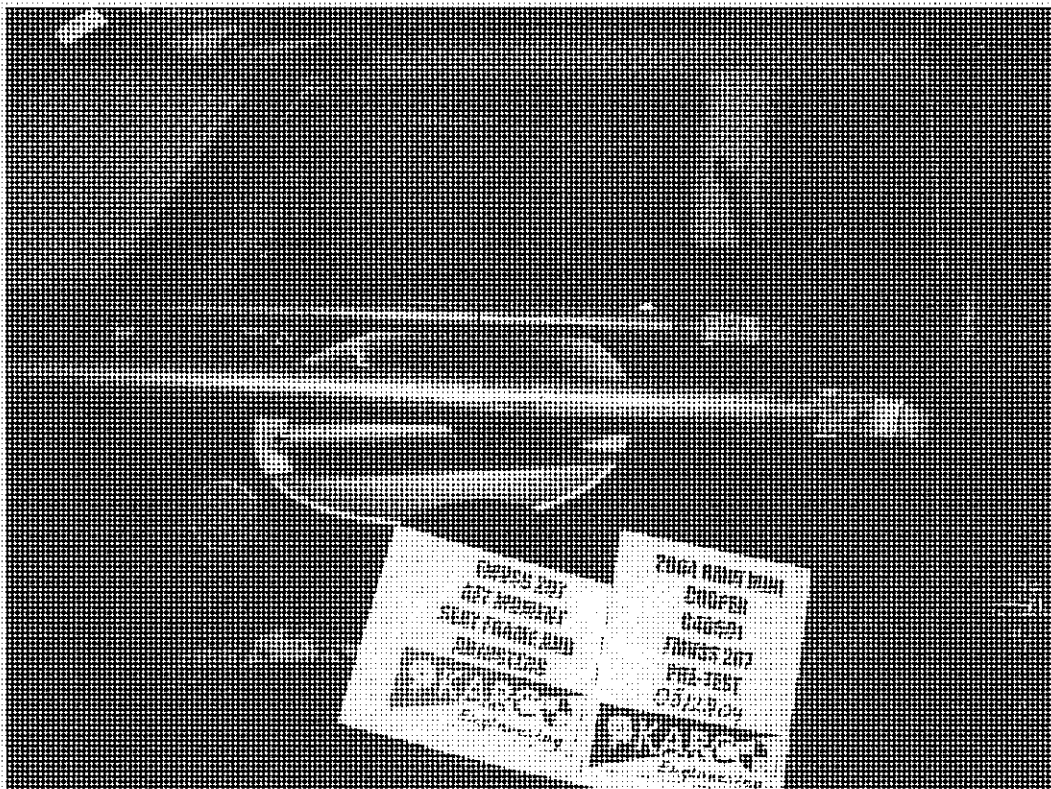


Figure A-11: Alt Moment on Seat Frame and Adjusters, Driver's Side, Pre-Test

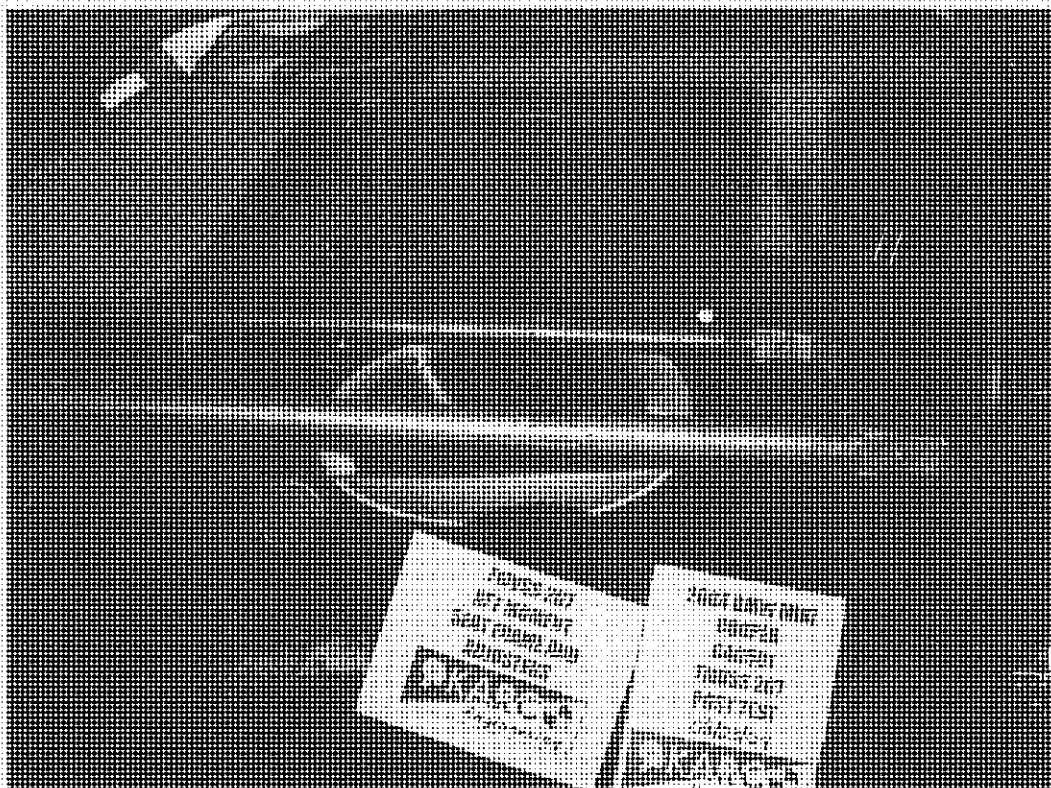


Figure A-12: Alt Moment on Seat Frame and Adjusters, Driver's Side, Post-Test

A-3

200-KC-3-01-001



Figure A-13. All Moment on Seat Frame and Adjusters, Passenger's Side, Pre-Test

A-4

200-KC-3-01-001

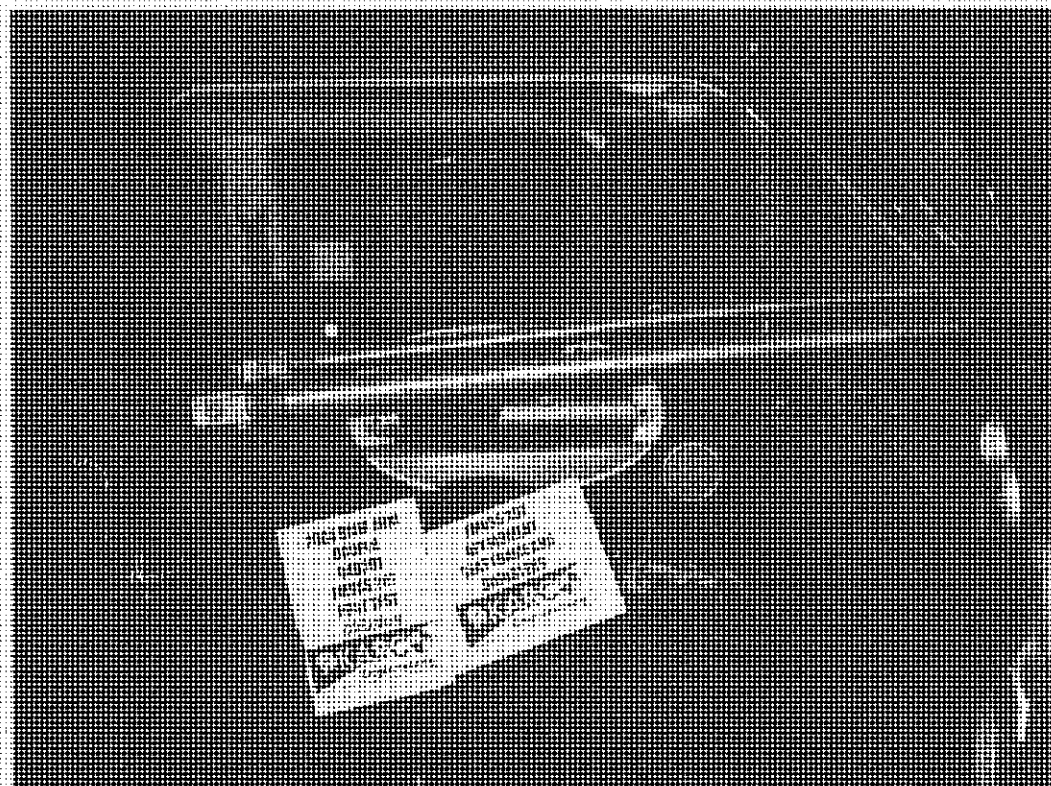


Figure A-14. All Moment on Seat Frame and Adjusters, Passenger's Side, Post-Test

A-15

2017-12-29 09:01

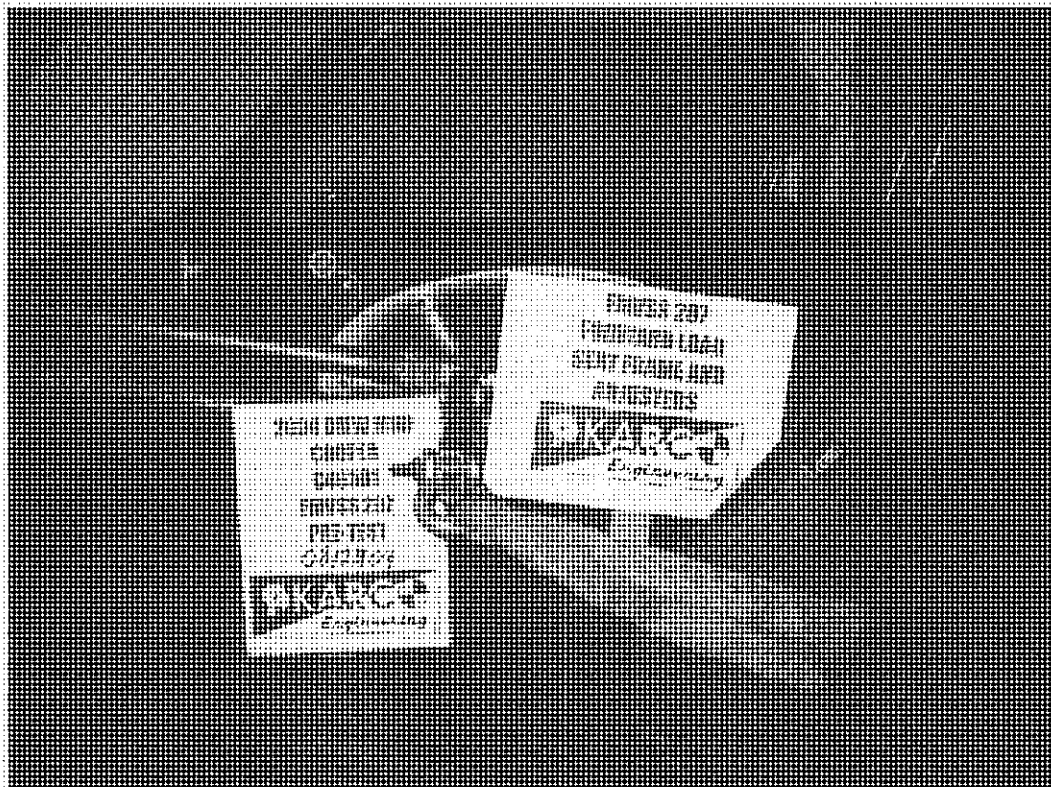


Figure A-15. Forward Load on Seat Assembly, Driver's Side, Pre-Test

A-16

2017-12-29 09:01

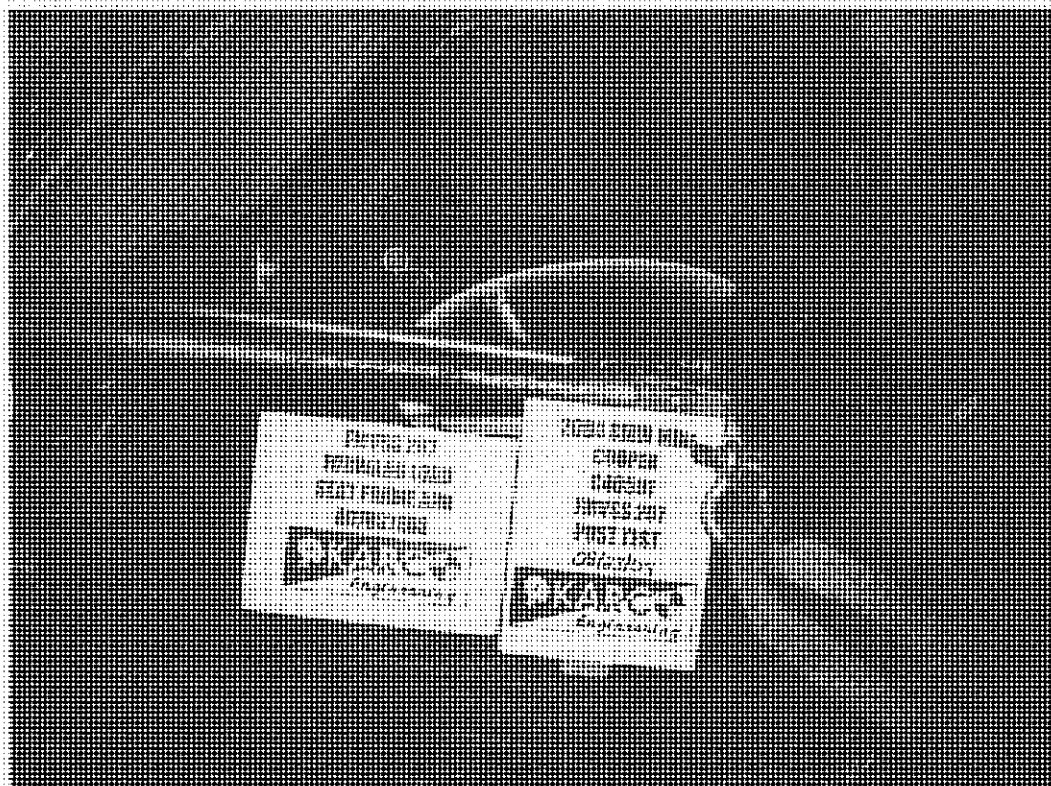


Figure A-16. Forward Load on Seat Assembly Driver's Side, Post-Test

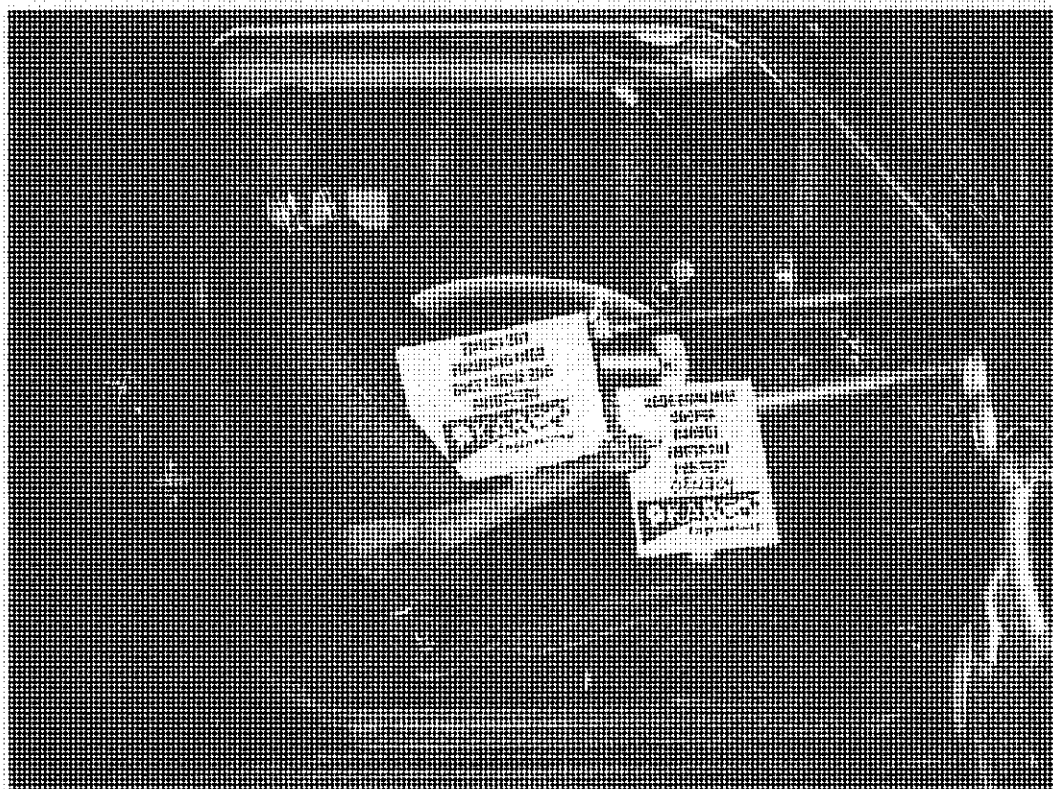


Figure A-17: Forward Load on Seat Assembly, Passenger's Side, Pre-Test

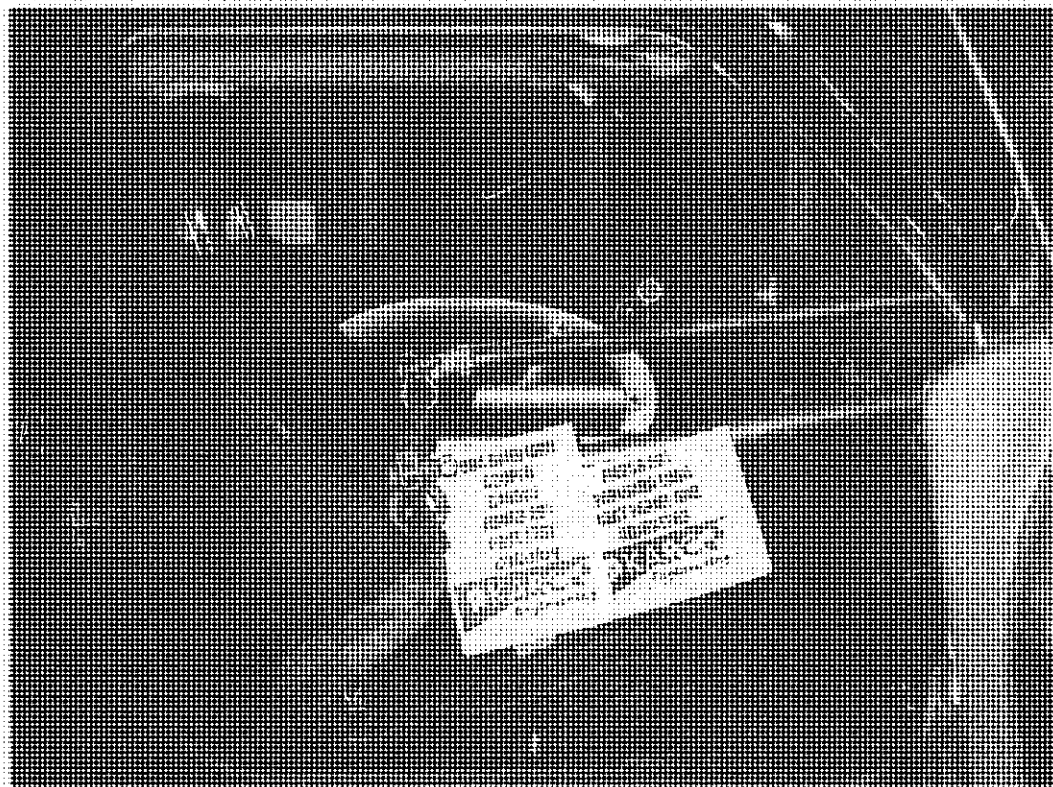


Figure A-18: Forward Load on Seat Assembly, Passenger's Side, Post-Test

A-19

2025-04-09



Figure A-19: Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test

A-20

2025-04-09

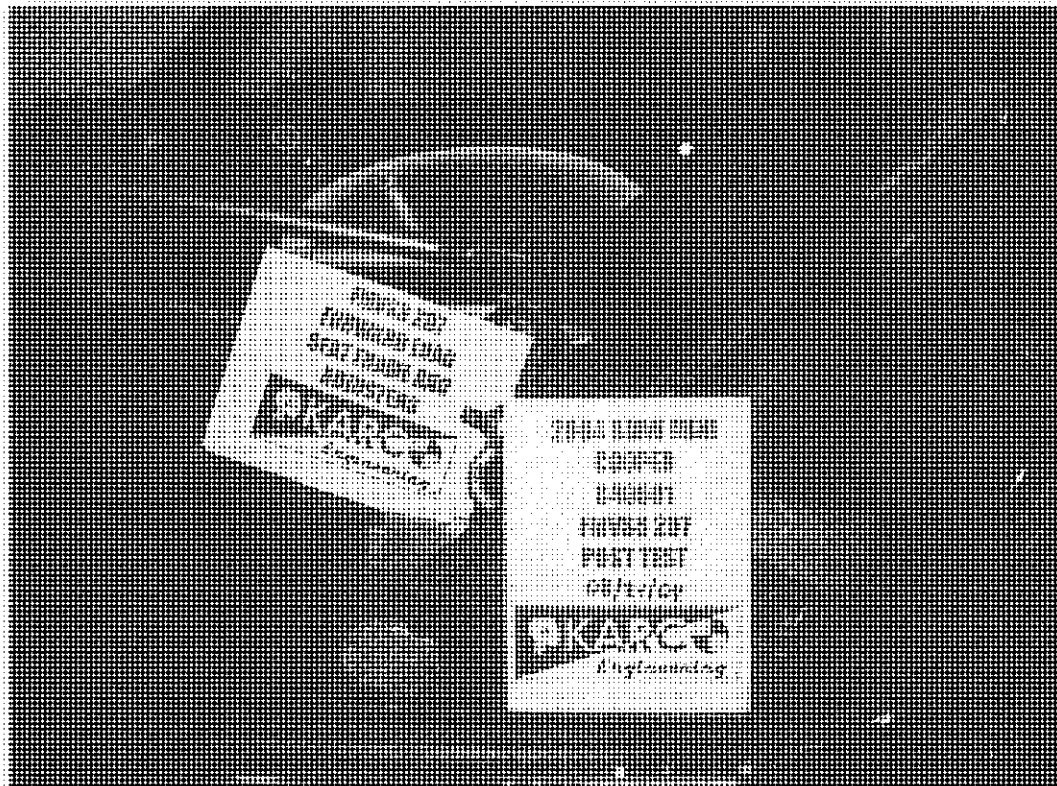


Figure A-20: Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test



Figure A-23. A7 Load on Seat Frame and Adjusters, Driver's Side, Pre-Test

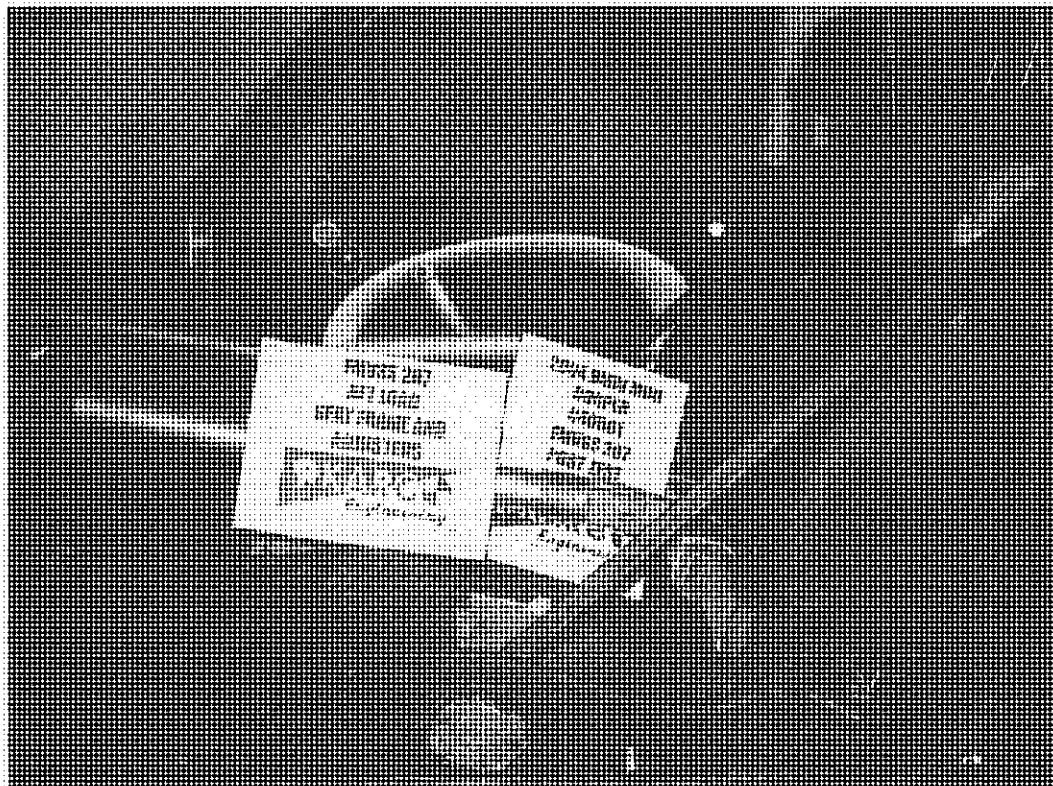


Figure A-24. All Load on Seat Frame and Adjusters, Driver's Side, Post-Test

A-25

2007 MAR 04 00:03



Figure A-25: A2 Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

A-26

2007 MAR 04 00:03

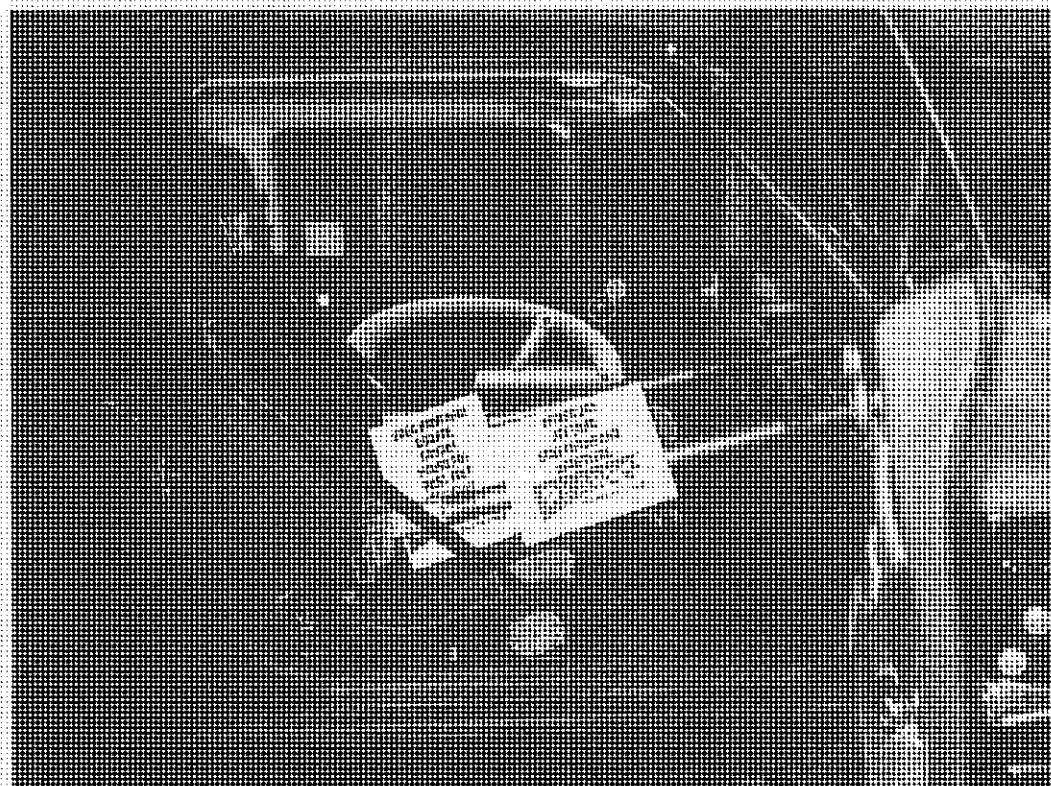


Figure A-26: A2 Load on Seat Frame and Adjusters, Passenger's Side, Post-Test



Figure A-27: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre Test



Figure A-28: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post Test

A-29

207-NC-9-04-001



Figure A-29: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test

A-30

207-KAP-9-04-001



Figure A-30: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test

A-32

207 K2-3-04-001

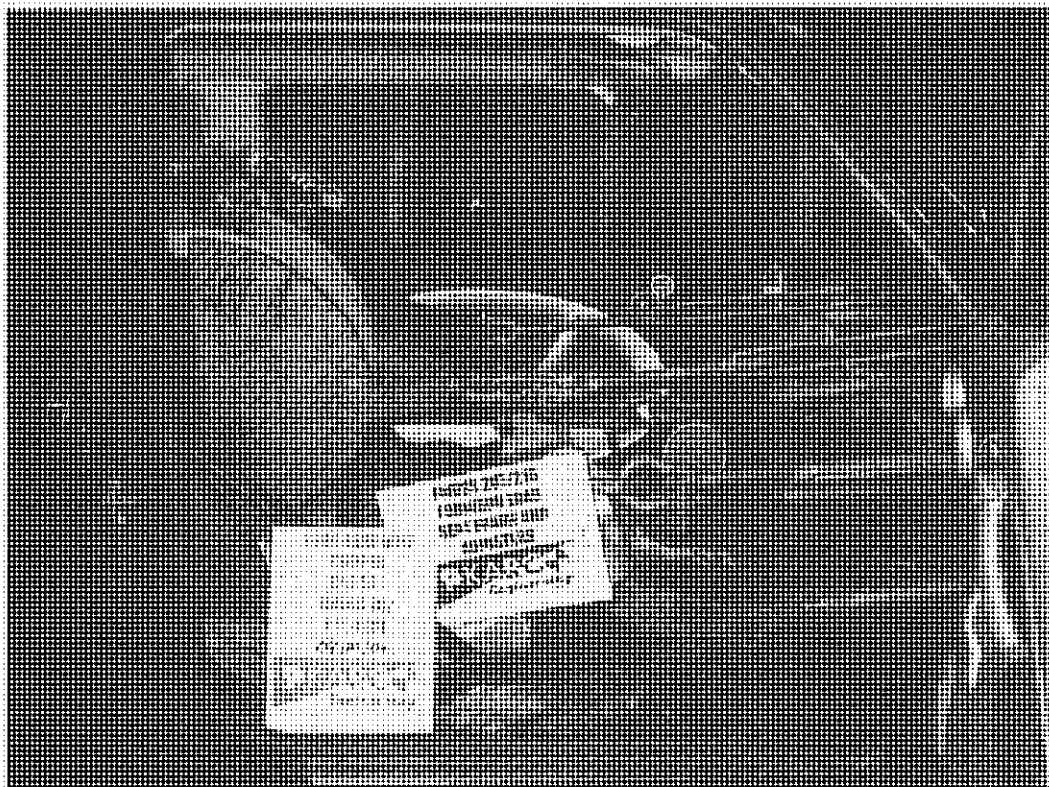


Figure A-31: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

A-32

207 K2-3-04-001

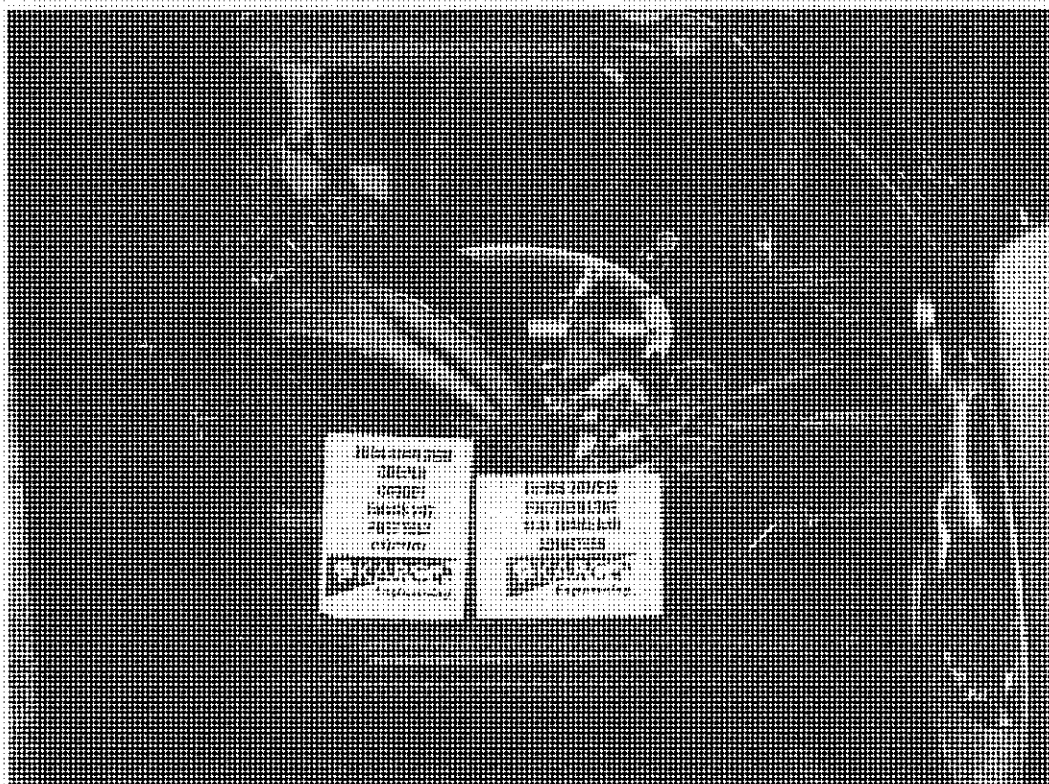


Figure A-32: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

A-33

207 NOV 04 01

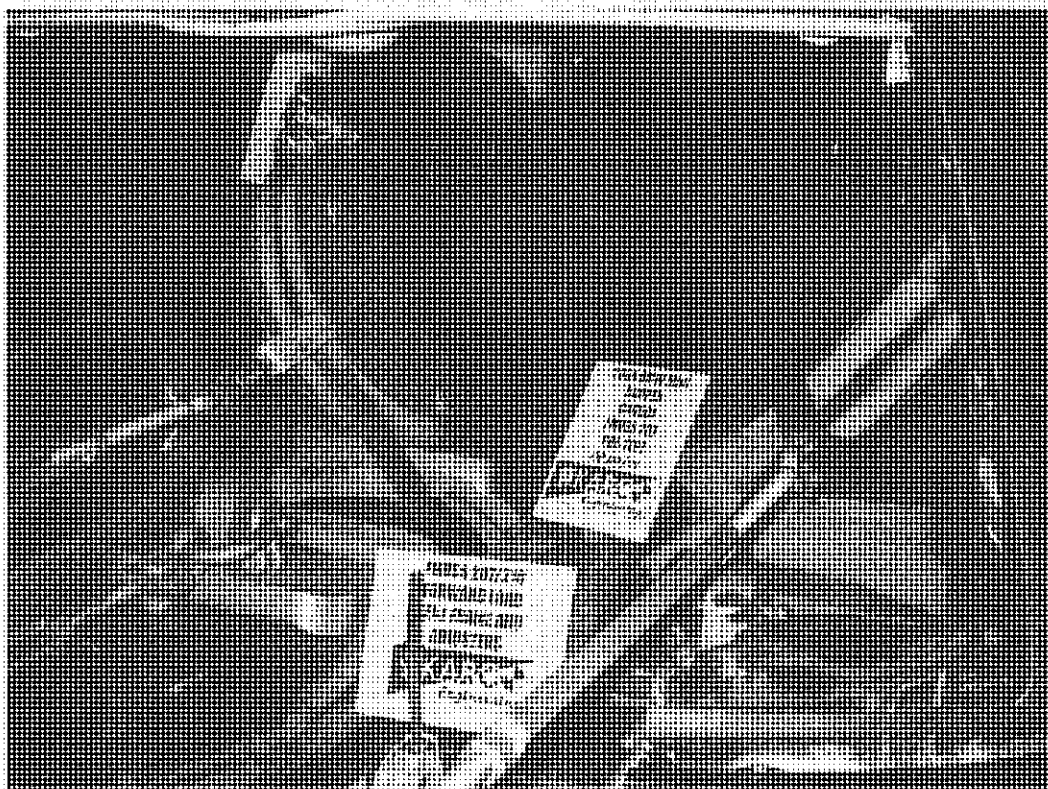


Figure A-33: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

A-34

207 NOV 04 01



Figure A-34: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

A-35

207-16-21-001

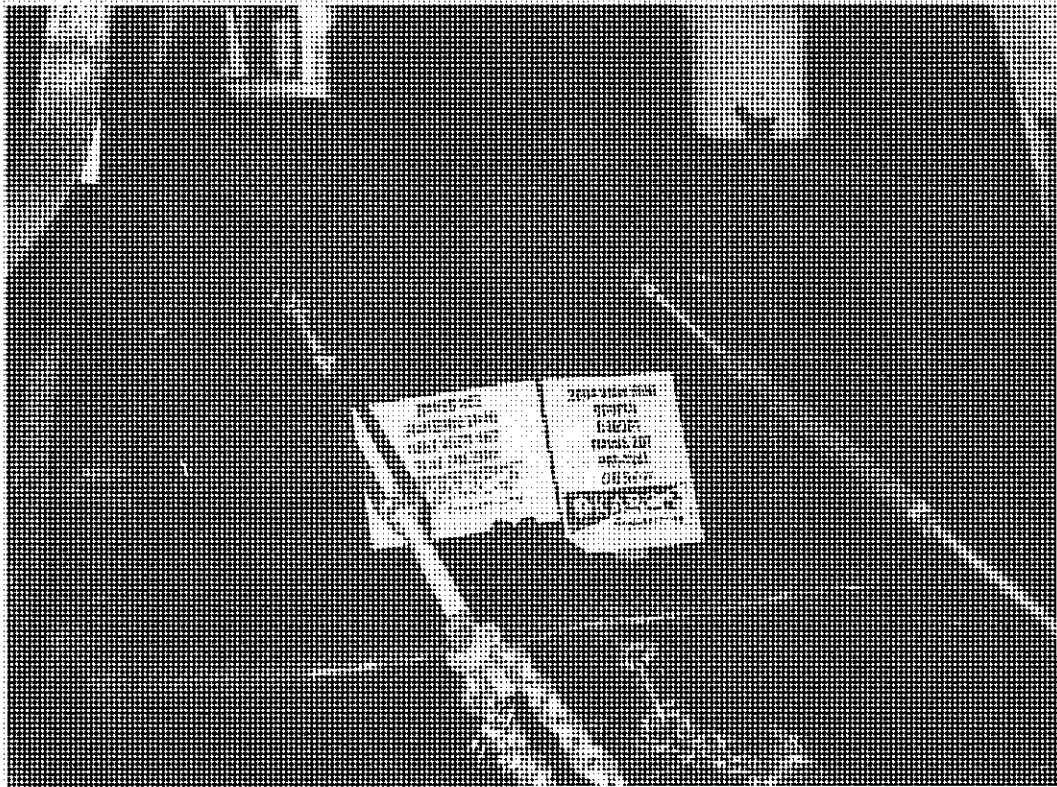


Figure A-35: Forward Load on Seat Back and Seat Cushion, Driver's Side Rear, Pre-Test

A-36

207-16-21-001



Figure A-36: Forward Load on Seat Back and Seat Cushion, Driver's Side Rear, Post-Test

A-37

227 K018 01.001

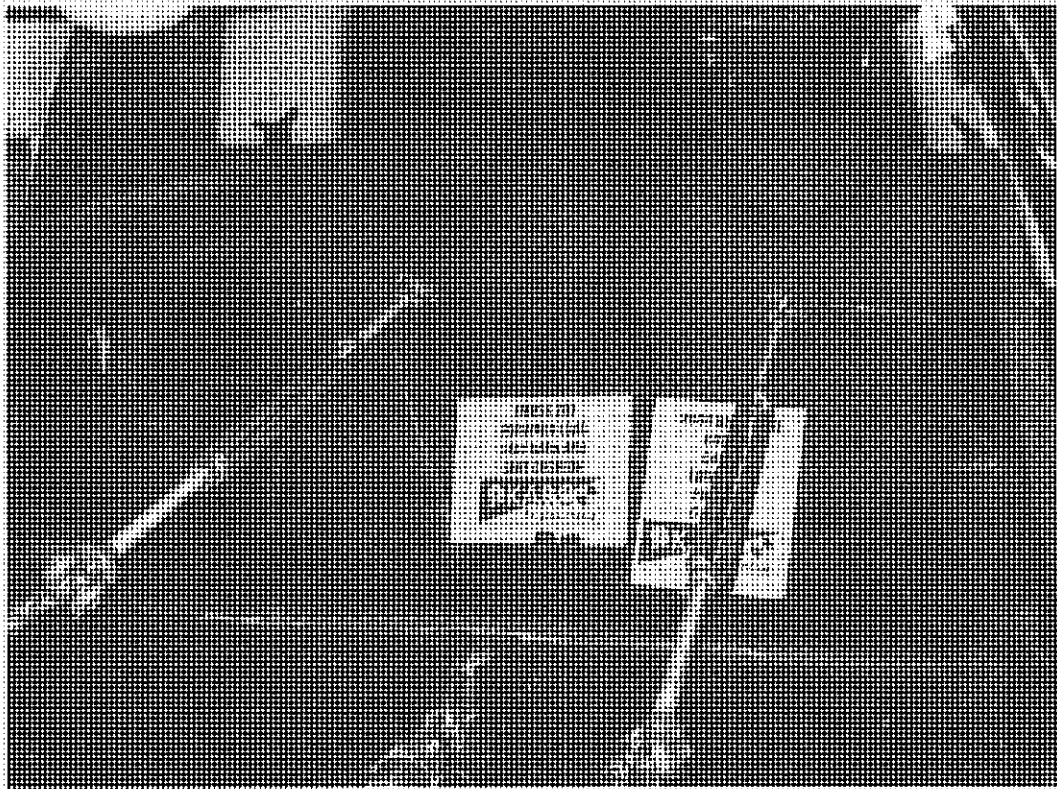


Figure A-37: Forward Load on Seat Back and Seat Cushion, Passenger's Side Rear, Pre-Test

A-38

207 K018 01.001



Figure A-38: Forward Load on Seat Back and Seat Cushion, Passenger's Side Rear, Post-Test

A-41

207 K030R 001

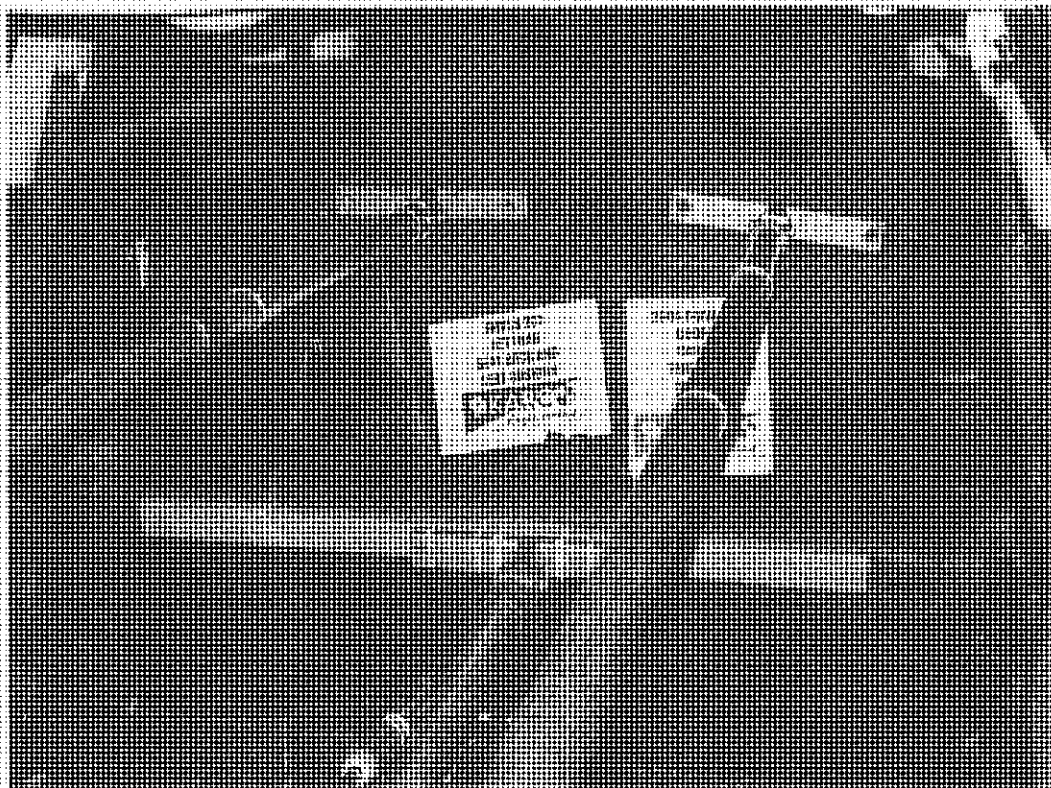


Figure A-41: Aft Load on Seat Back and Seat Cushion, Passenger's Side Rear, Pre-Test

A-42

207 K030R 001

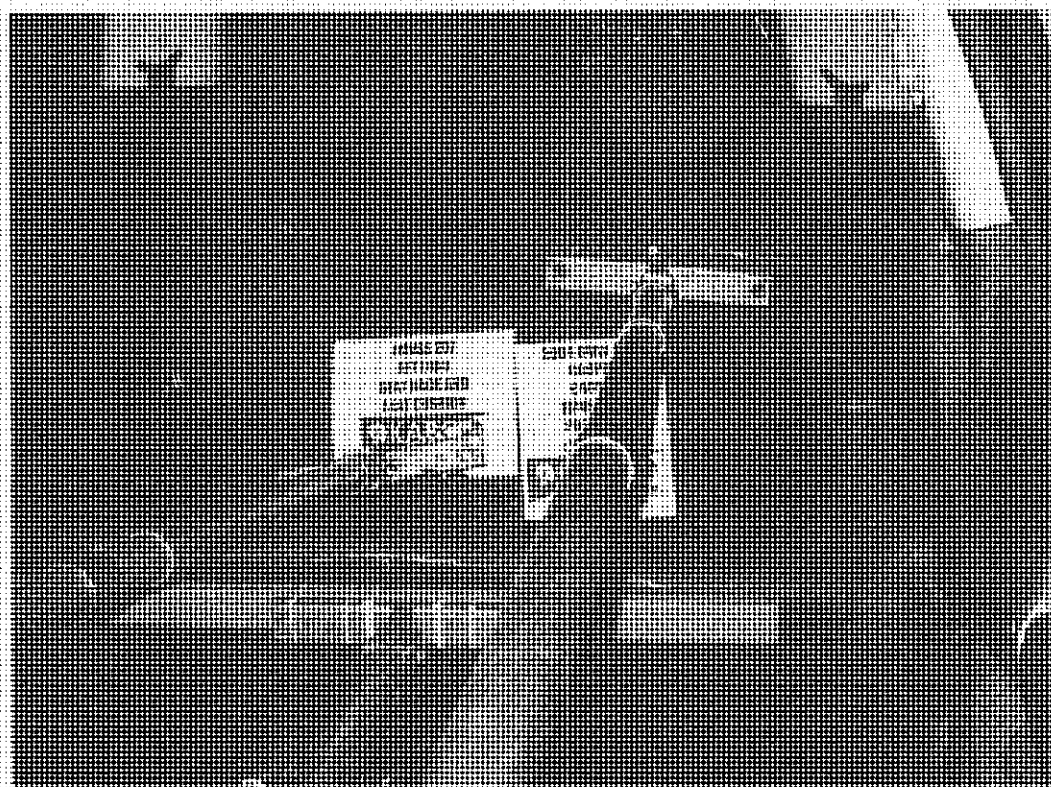


Figure A-42: Aft Load on Seat Back and Seat Cushion, Passenger's Side Rear, Post-Test

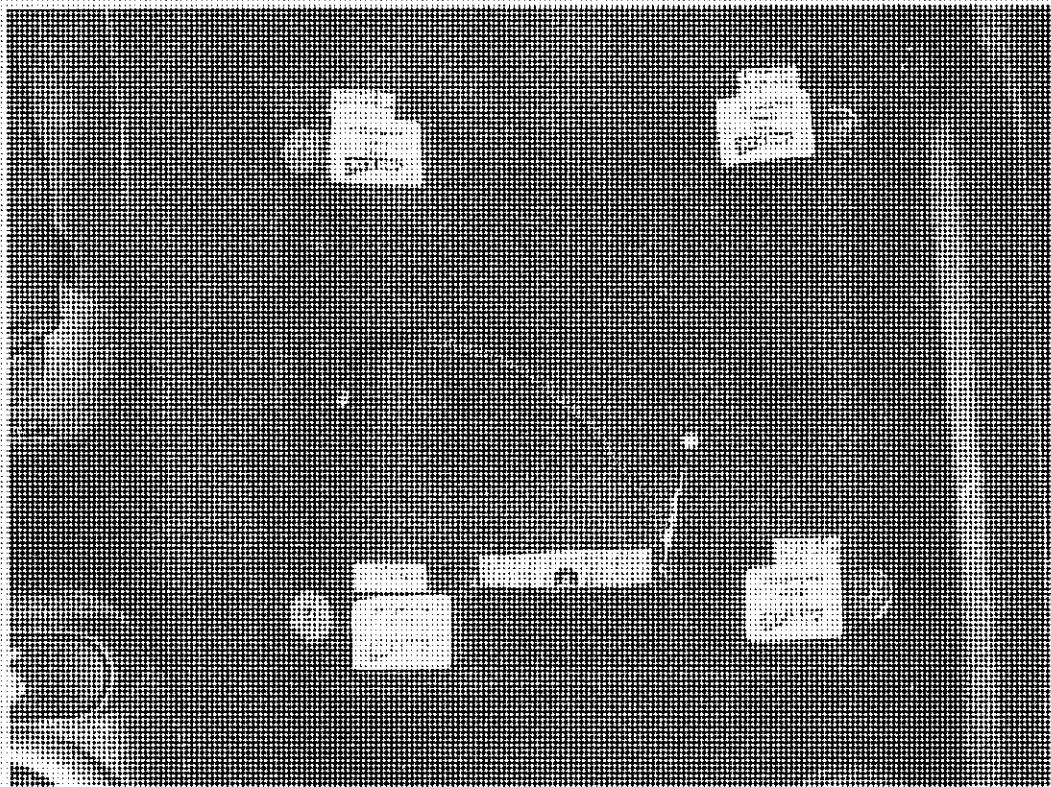


Figure A-43: Floor Pan Anchors, Left Front Seat Overlaid, Post-Test

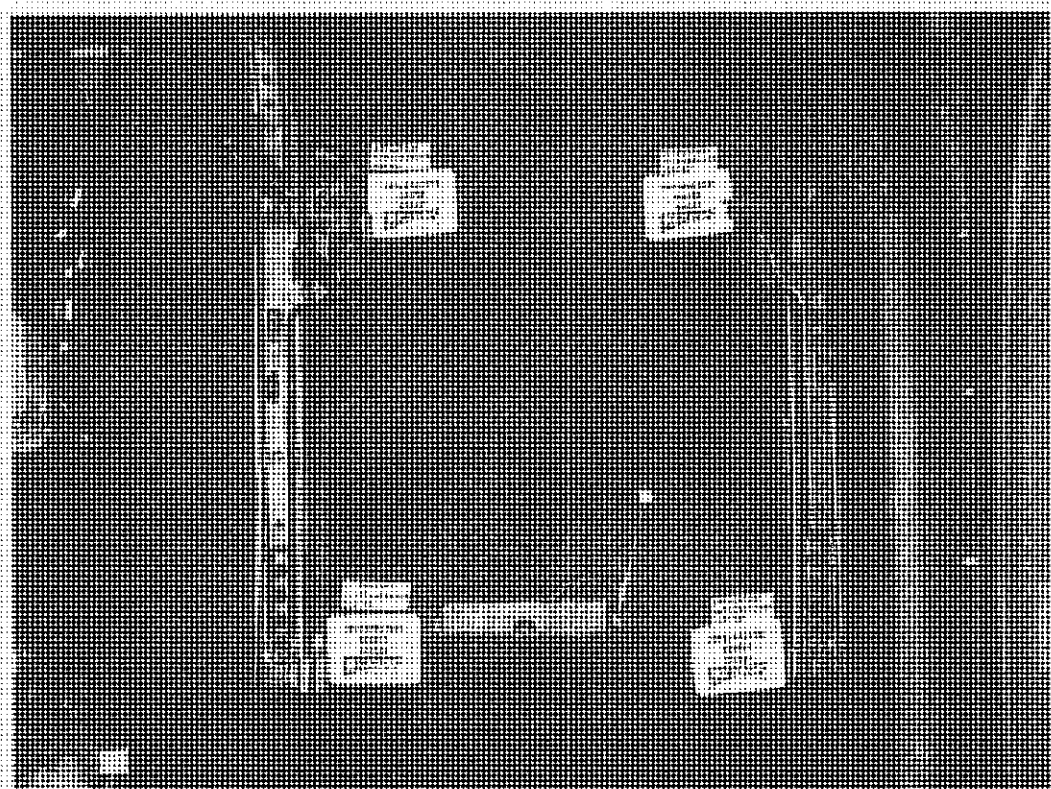


Figure A-44: Floor Pan Anchors, Left Front Seat Overlaid, Post-Test (With Seat Tracks still in place)

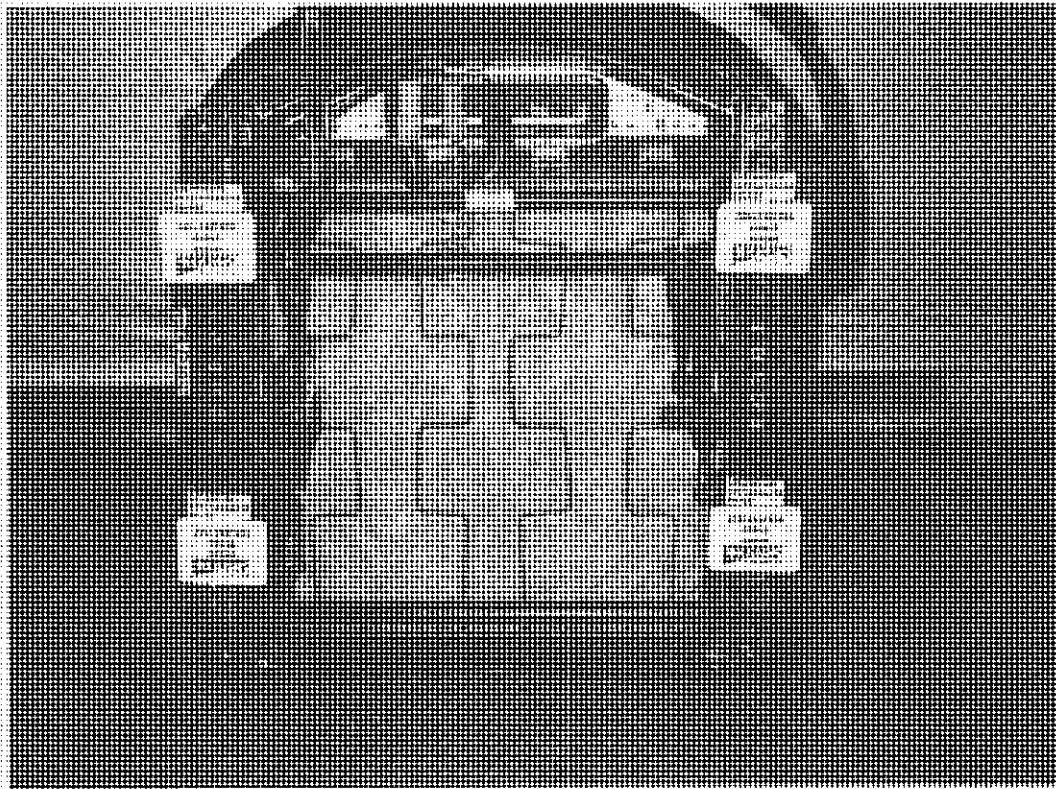


Figure A-45: Seat Anchors, Left Front Seat Overall, Pre-Test

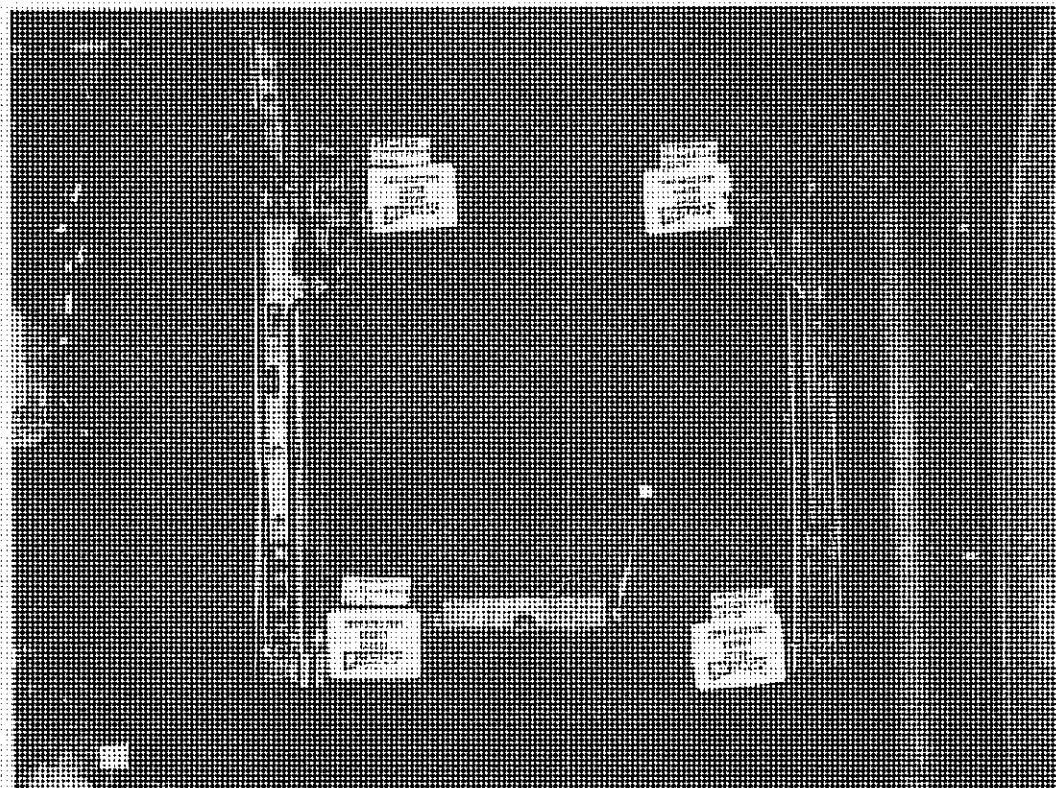


Figure A-46: Seat Anchors, Left Front Seat Overall, Post-Test (With Seat Tracks etc. in place)

A-47

2004 MINI COOPER

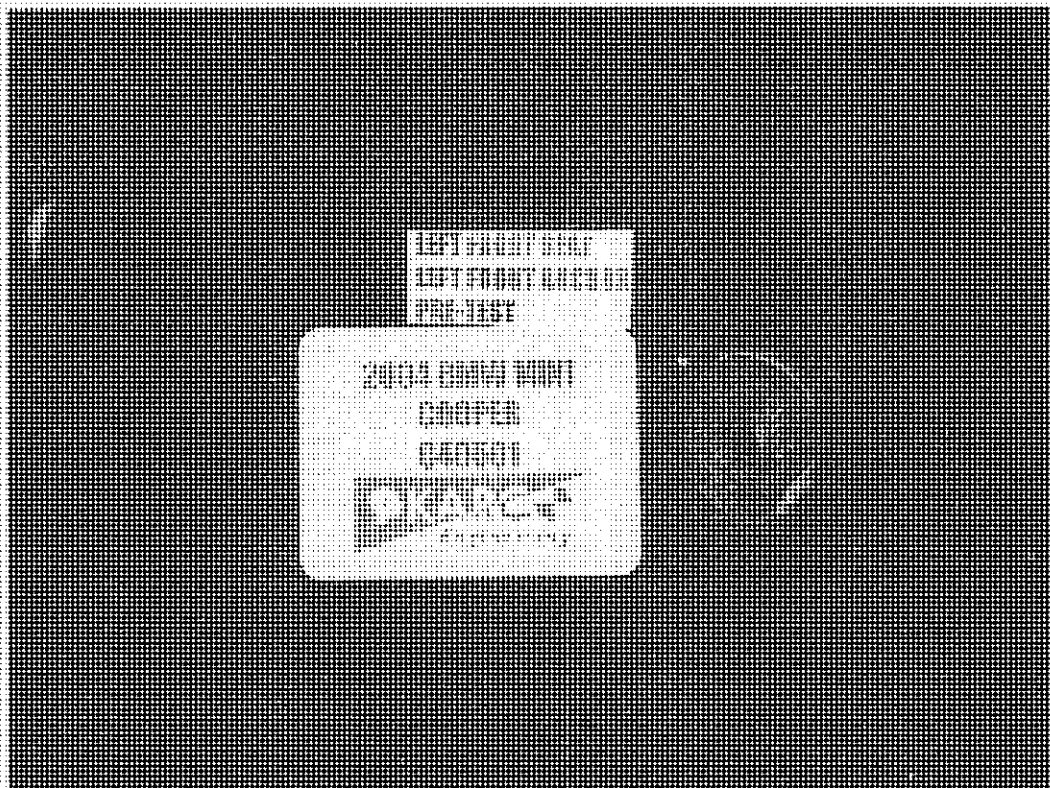


Figure A-47: Floor Pan Anchor, Left Front Seat, Pre-Test

A-48

2004 MINI COOPER



Figure A-48: Floor Pan Anchor, Left Front Seat, Post-Test (With Seat Tracks still in place)

A-40

2004 BMW MINI

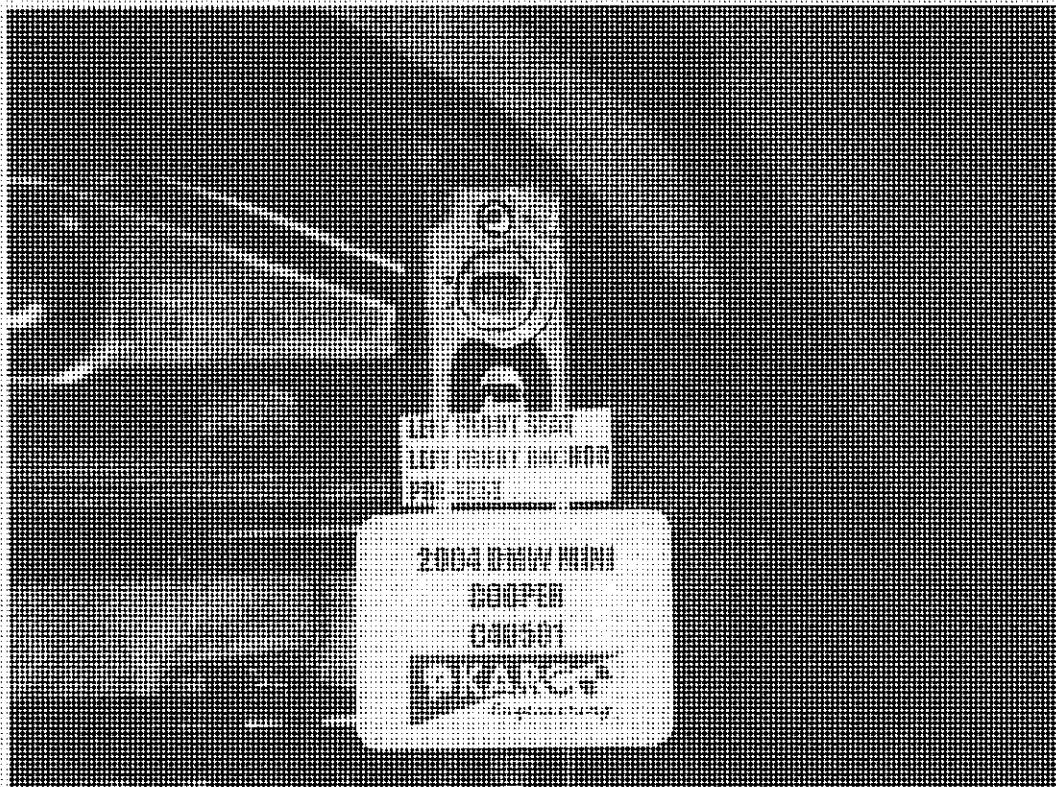


Figure A-45: Seal Anchor, Left Front Seat, Pre-Test.

A-41

2004 BMW MINI



Figure A-50: Seal Anchor, Left Front Seat, Post-Test (With Seat Tracks Still in place)

A-51

2007-04-24 09:11



Figure A-51: Floor Pan Anchor, Left Front Seat, Pre-Test

A-52

2007-04-24 09:17



Figure A-52: Floor Pan Anchor, Left Front Seat, Post-Test (VSC Seat Tracks off in place)

A-53

2014-04-04 04:00



Figure A-53: Seat Anchor, Left Front Seat, Pre-Test

A-54

2014-04-04 04:00

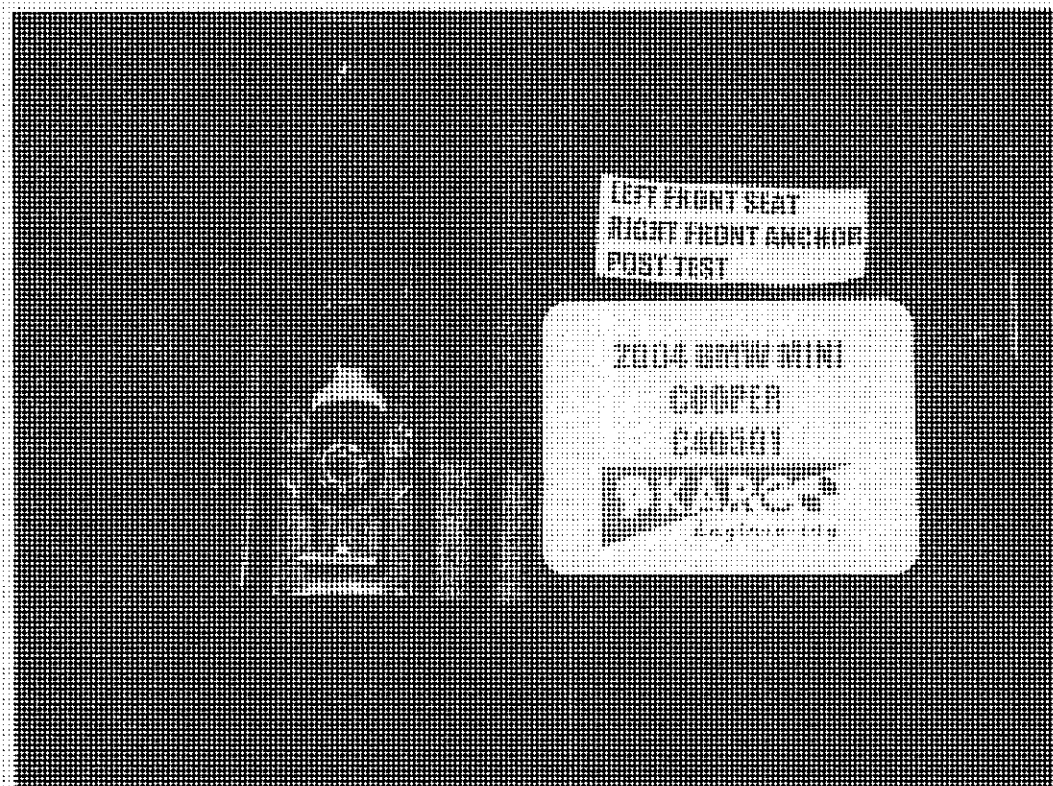


Figure A-54: Seat Anchor, Left Front Seat, Post-Test (With Seat Tracks still in place)

A-55

207 MAR 24 2011



Figure A-55: Floor Pan Anchor, Left Front Seat, Pre-Test

A-56

207 MAR 24 2011

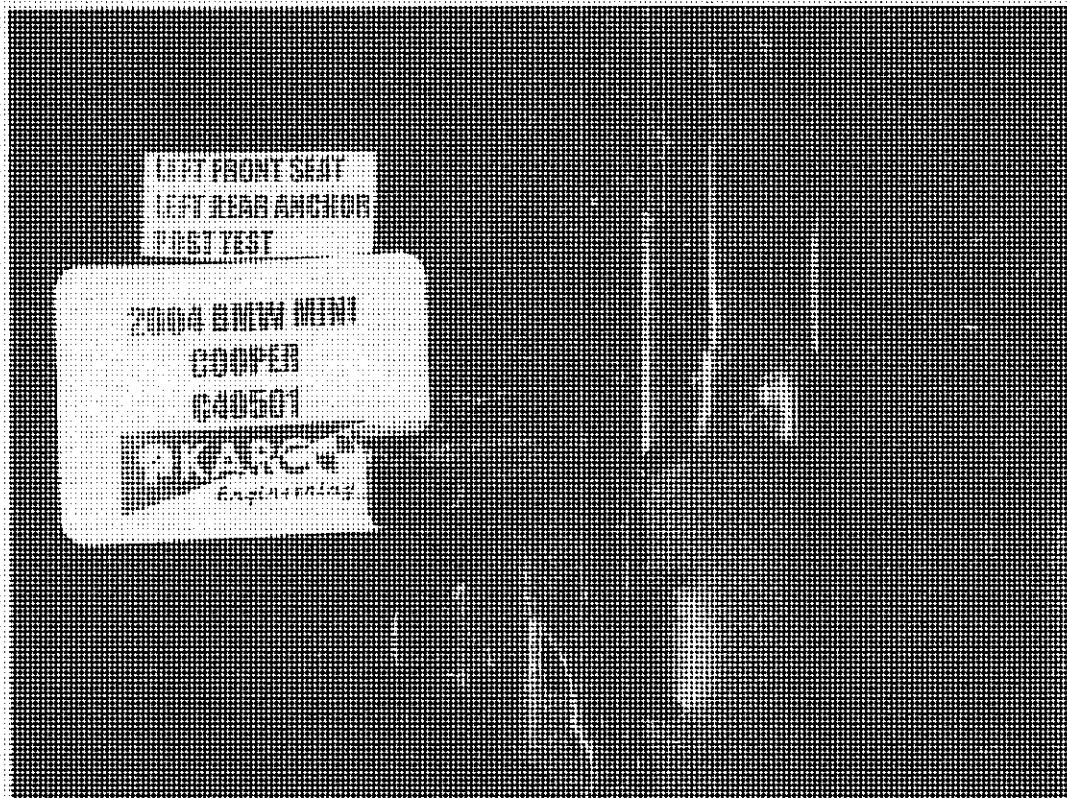


Figure A-56: Floor Pan Anchor, Left Front Seat, Post-Test (With Seat Tracks Still in Place)

A-57

2013-01-01



Figure A-57: Seat Anchor, Left Front Seat, Pre-Test

A-58

2013-01-01

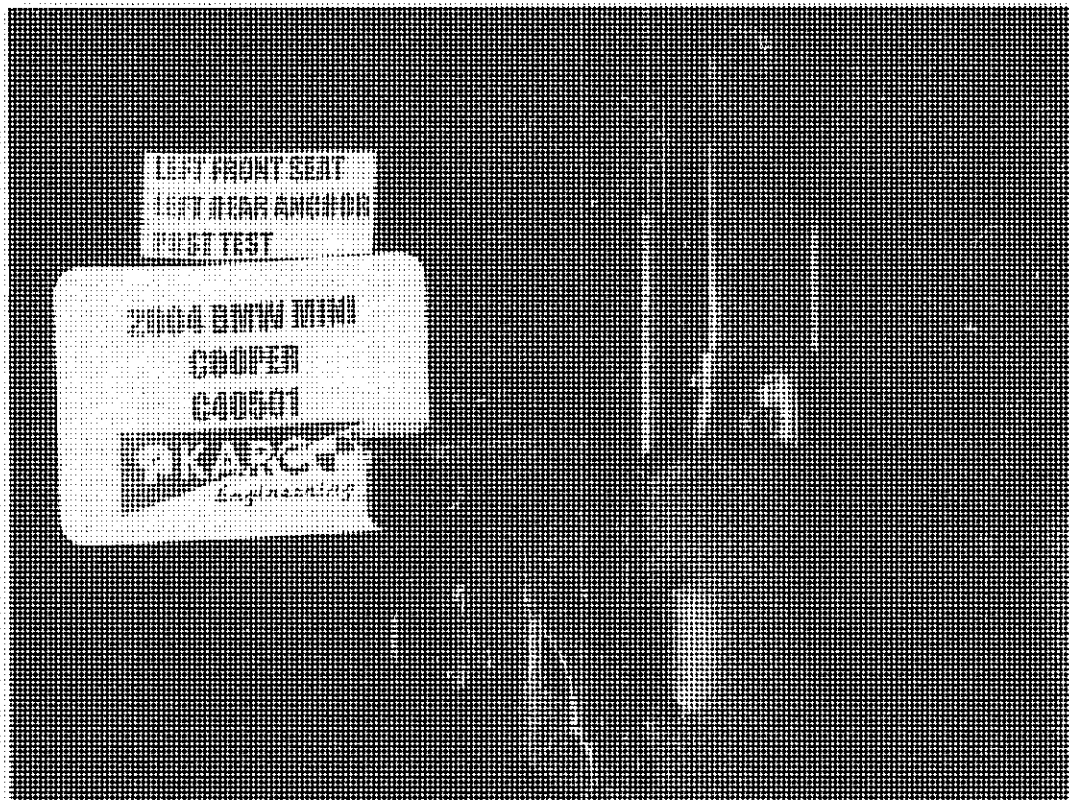


Figure A-58: Seat Anchor, Left Front Seat, Post-Test (With Seat Tracks Still in place)

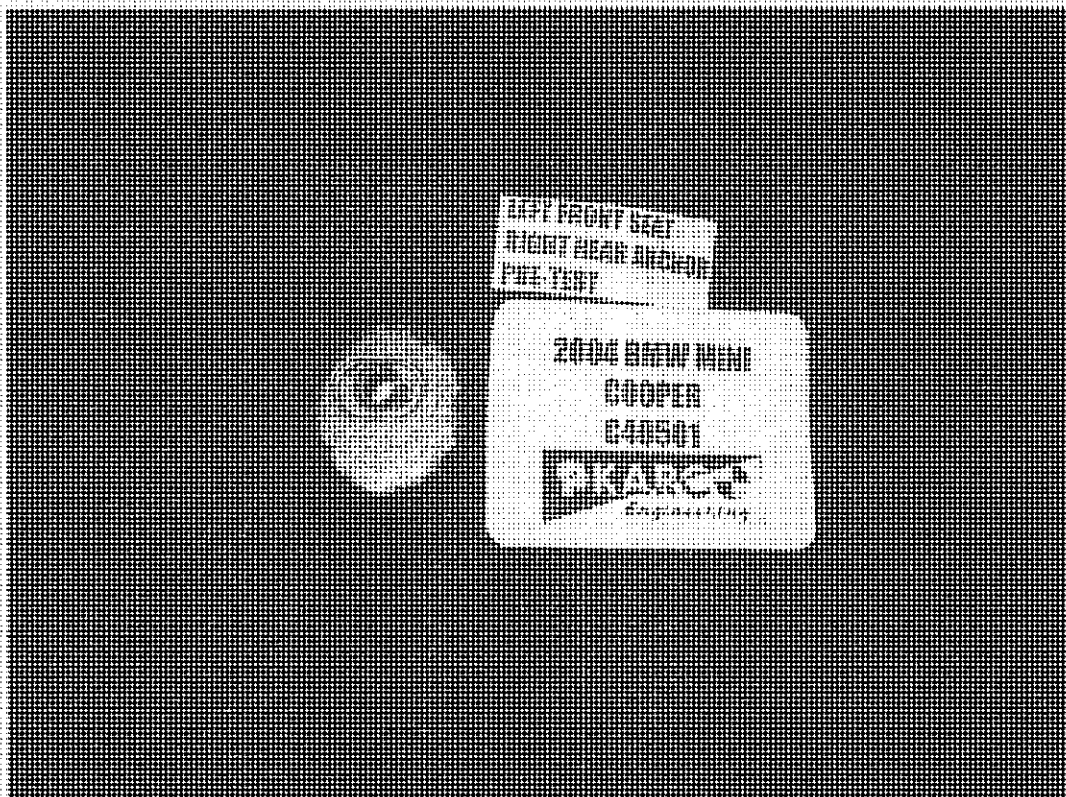


Figure A-50: Floor Pan Anchor, Left Front Seat, Post Test

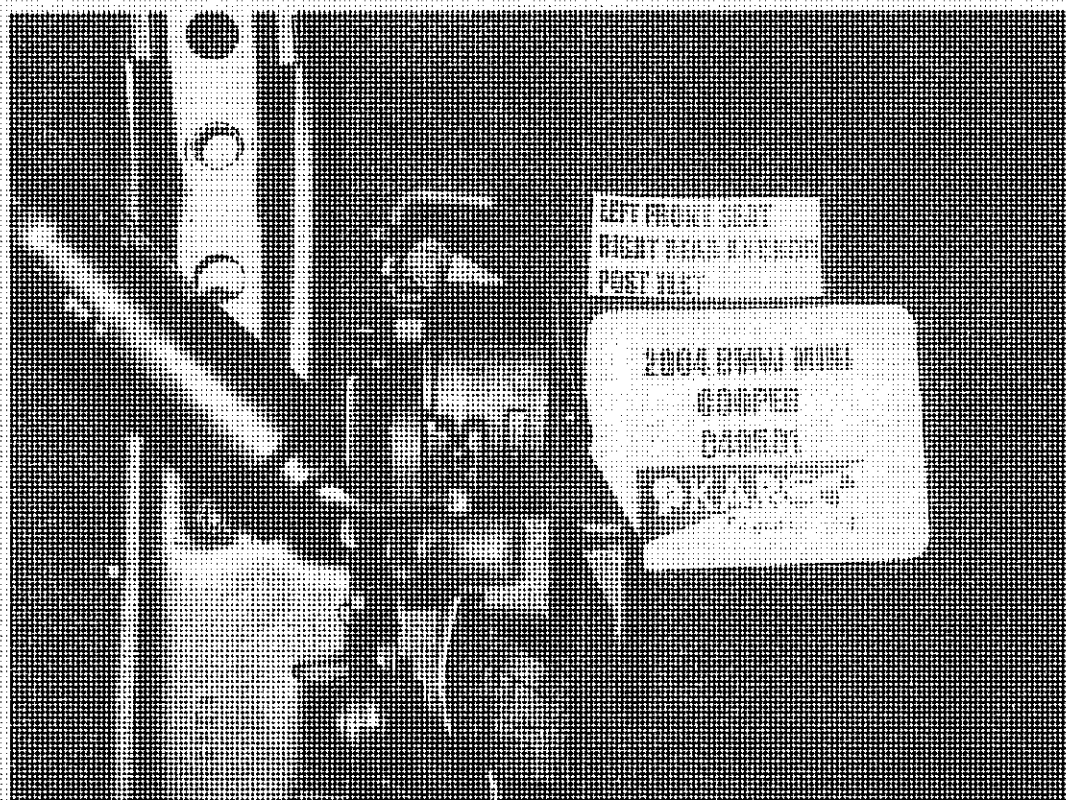


Figure A-50: Floor Pan Anchor, Left Front Seat, Post Test (With Seat Tracks still in place)



Figure A-61: Seat Anchor, Left Front Seat, Pre-Test

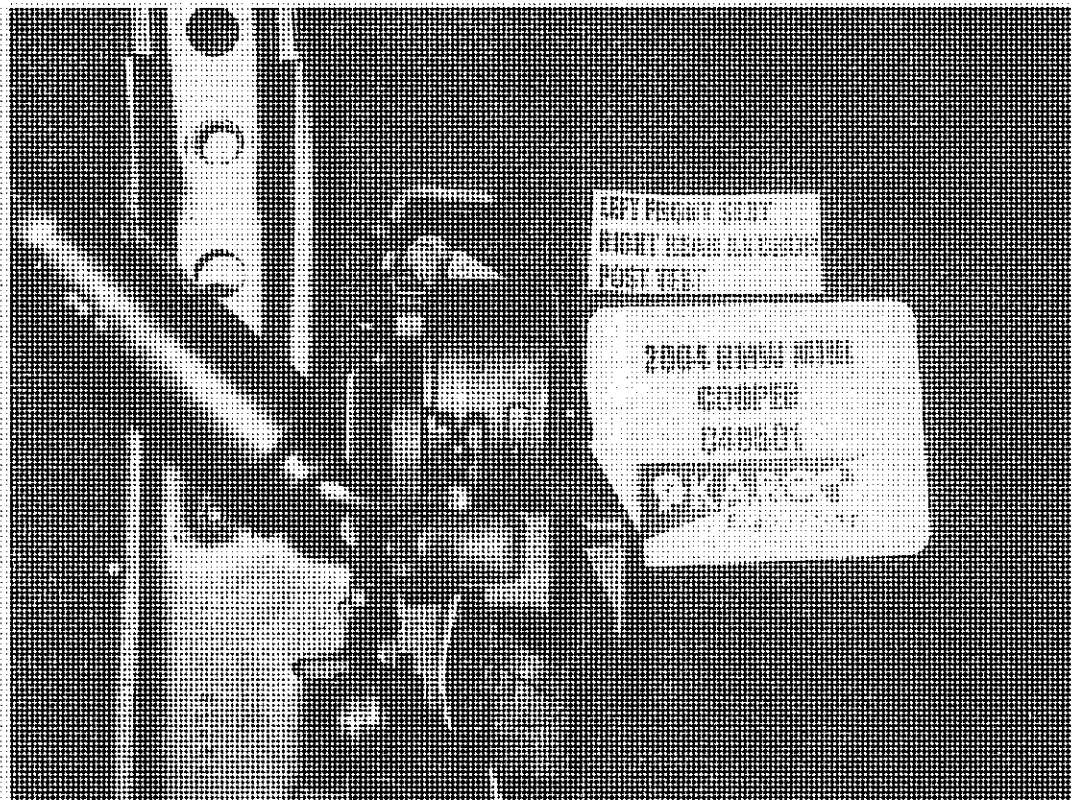


Figure A-62: Seat Anchor, Left Front Seat, Post-Test (with Seat Tracks set in place)

A-63

701-141-3-4-503

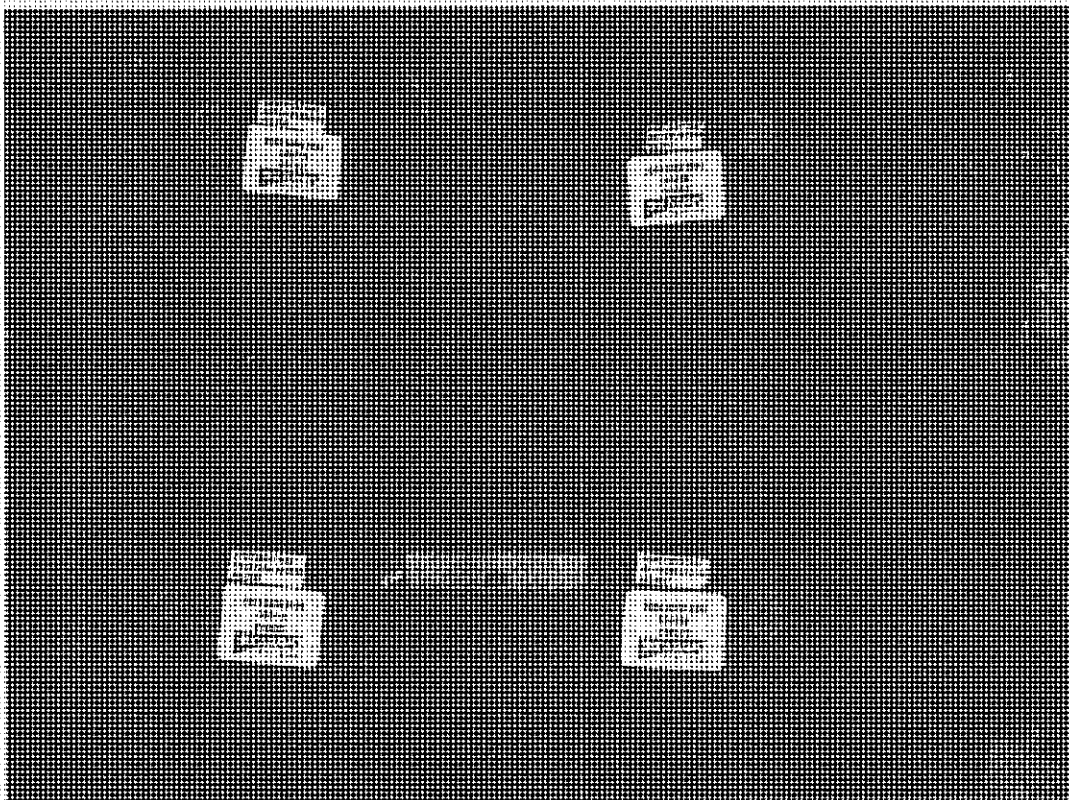


Figure A-63: Floor Pan Anchors, Right Front Seat Overall, Pro Test

A-64

27-548-3-503

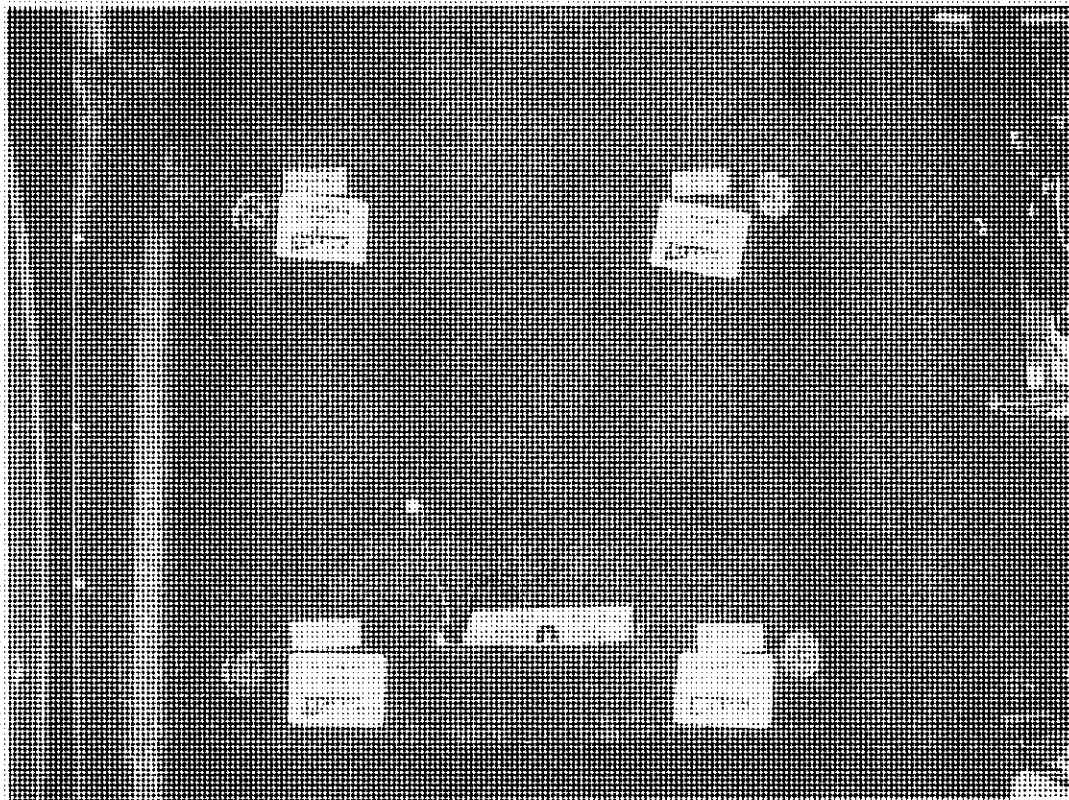


Figure A-64: Floor Pan Anchors, Right Front Seat Overall, Fuel Test

A-65

200-001-04-000

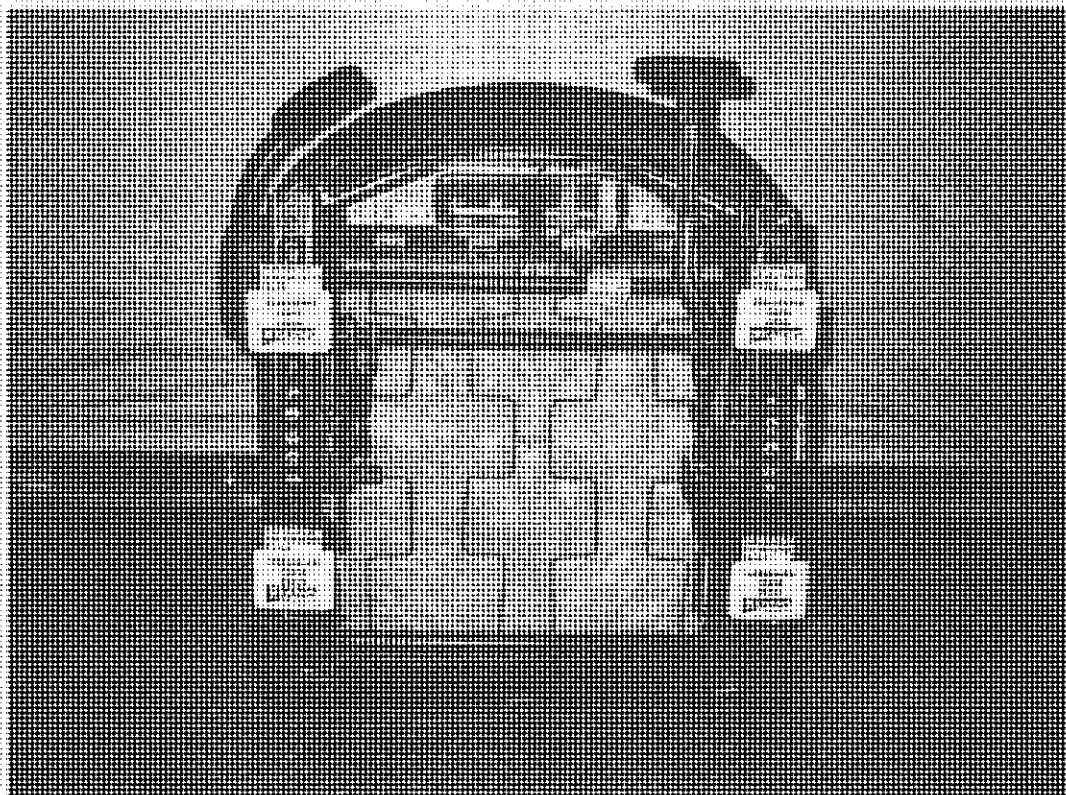


Figure A-65: Seat Anchors, Right Front Seat Overall, Pre-Test

A-66

200-001-04-000

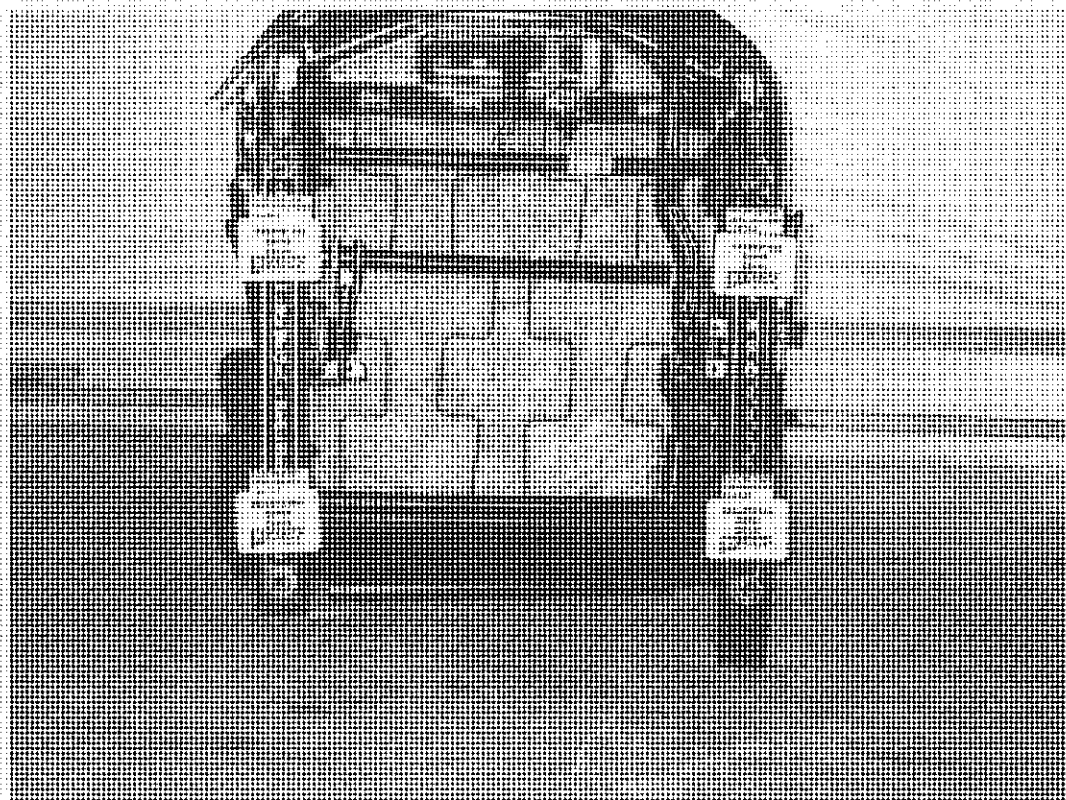


Figure A-66: Seat Anchors, Right Front Seat Overall, Post-Test

A-67

2004-06-14-001

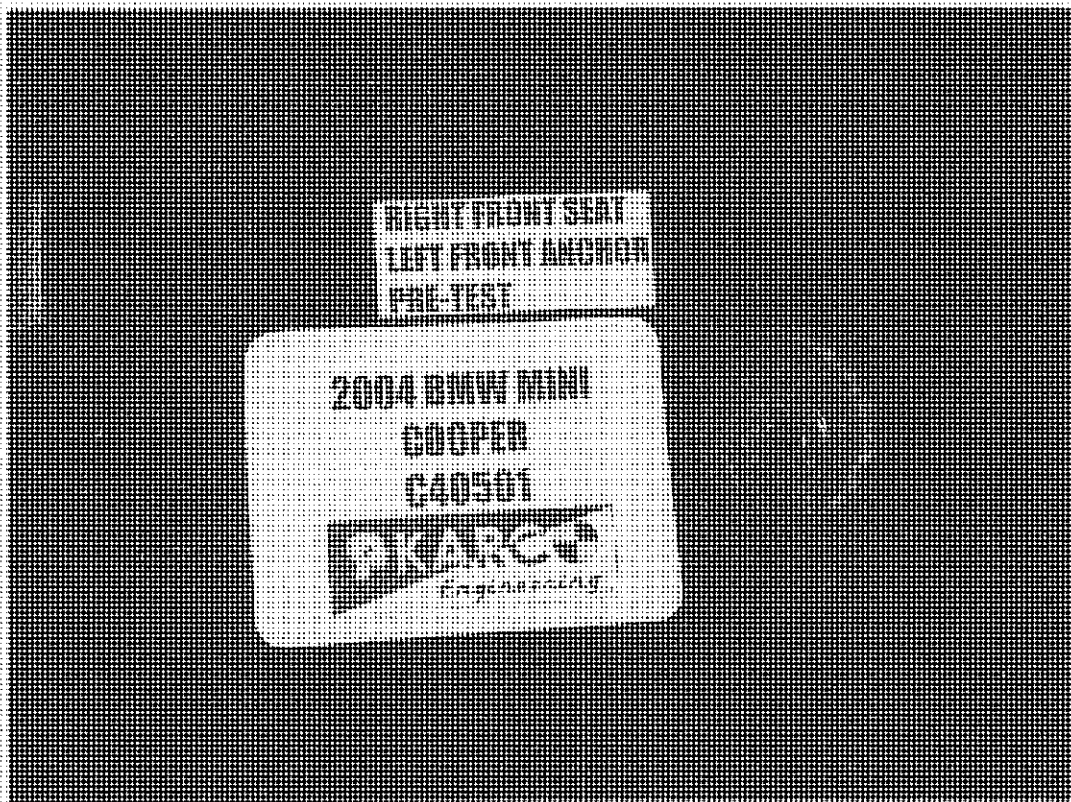


Figure A-67: Floor Pan Anchor, Right Front Seat, Pre-Test

A-68

2004-06-14-001



Figure A-68: Floor Pan Anchor, Right Front Seat, Post-Test

1-2

NOV 2004 04:00:01



Figure A-69. Seat Anchor, Right Front Seat, Pre-Test

A-70

207 NOV 24 2004

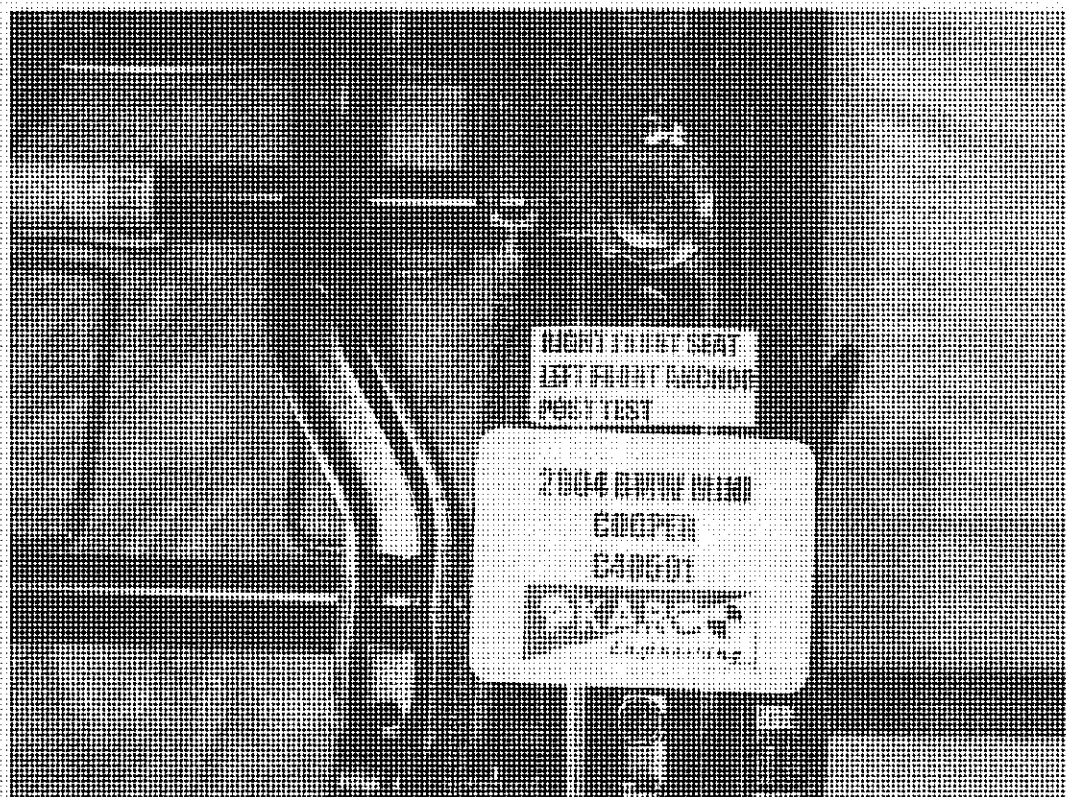


Figure A-70. Seat Anchor, Right Front Seat, Post-Test

A-71

2004 BMW MINI
COOPER
C40501



Figure A-71: Floor Pan Anchor, Right Front Seat, Pre-Test

A-72

2004 BMW MINI
COOPER
C40501

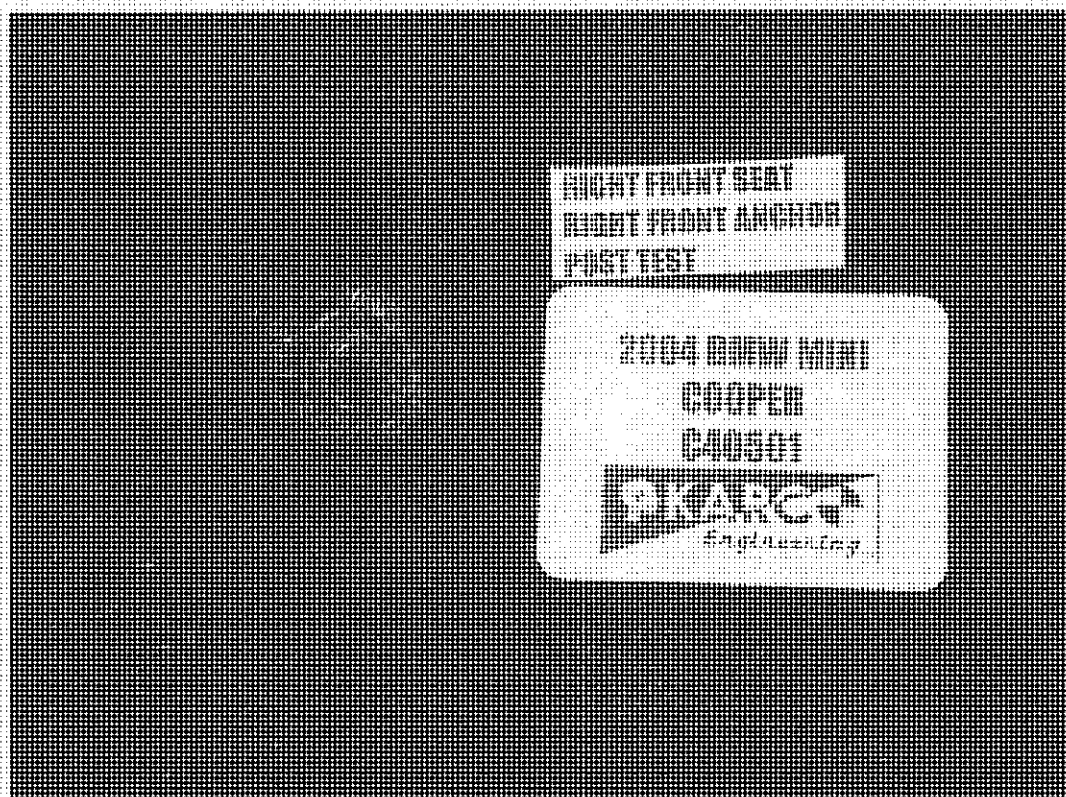


Figure A-72: Floor Pan Anchor, Right Front Seat, Post-Test

A-73

2014-01-06-001

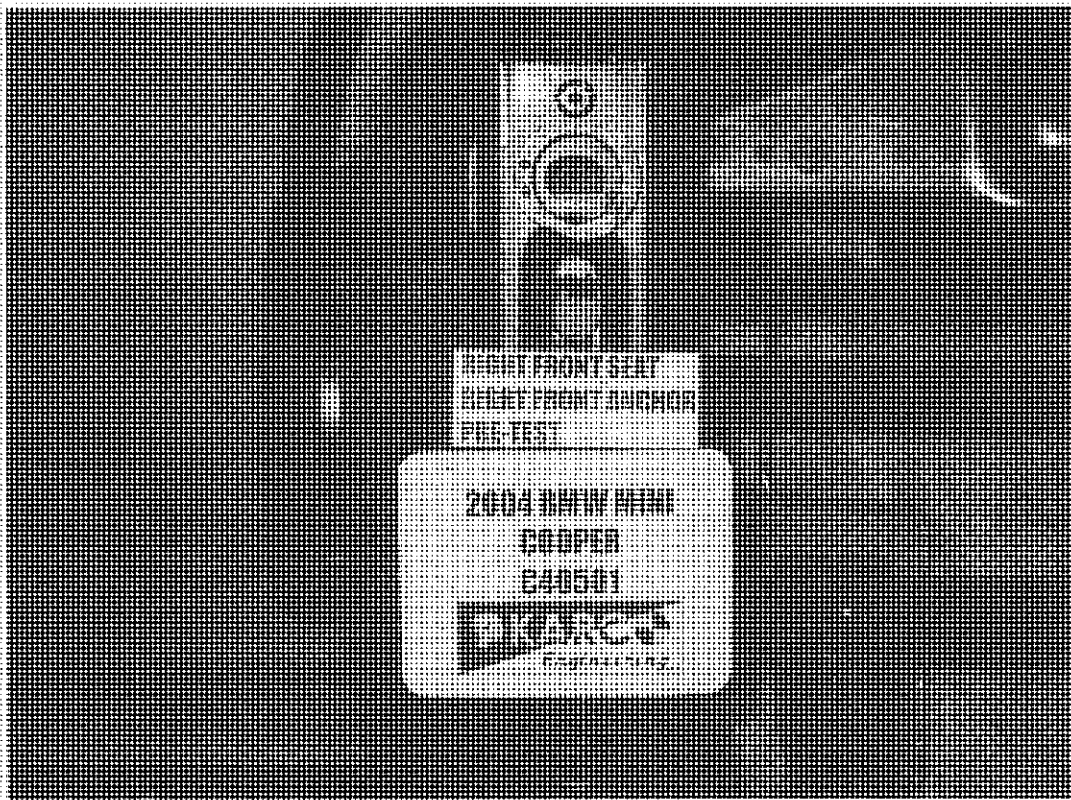


Figure A-73: Seat Anchor, Right Front Seat, Pre-Test

A-74

2014-01-06-001



Figure A-74: Seat Anchor, Right Front Seat, Post-Test

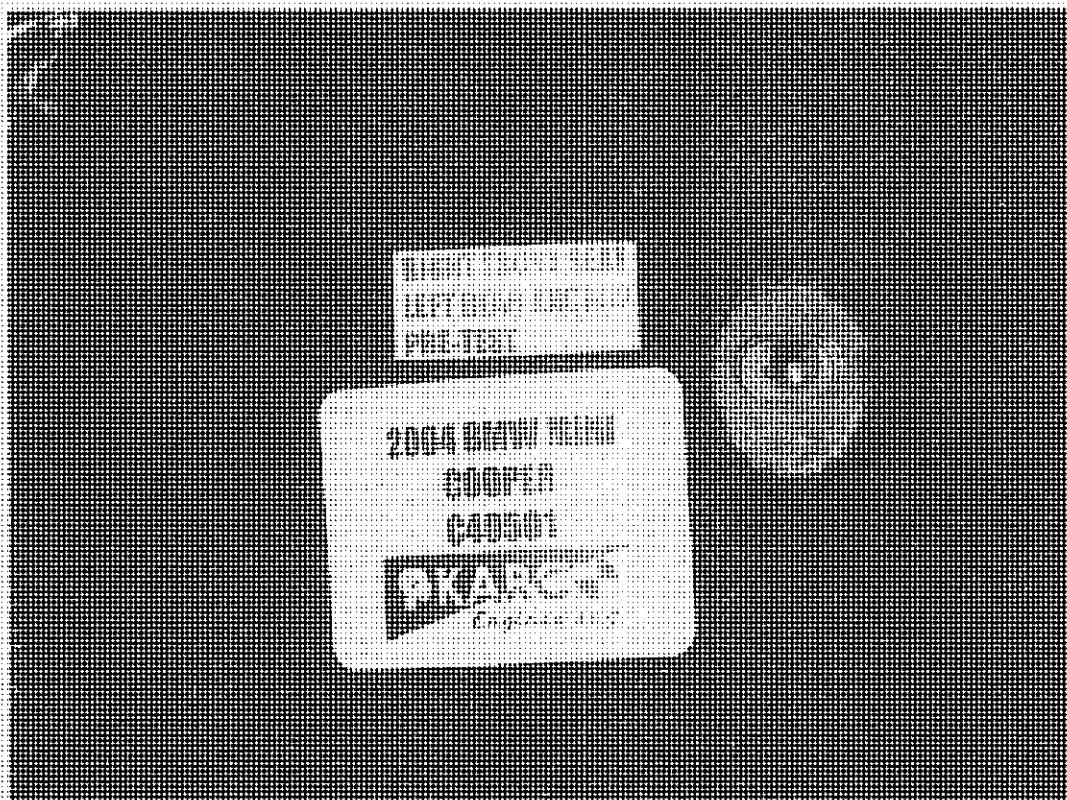


Figure A-75: Floor Pan Anchor, Right Front Seat, Pre-Test

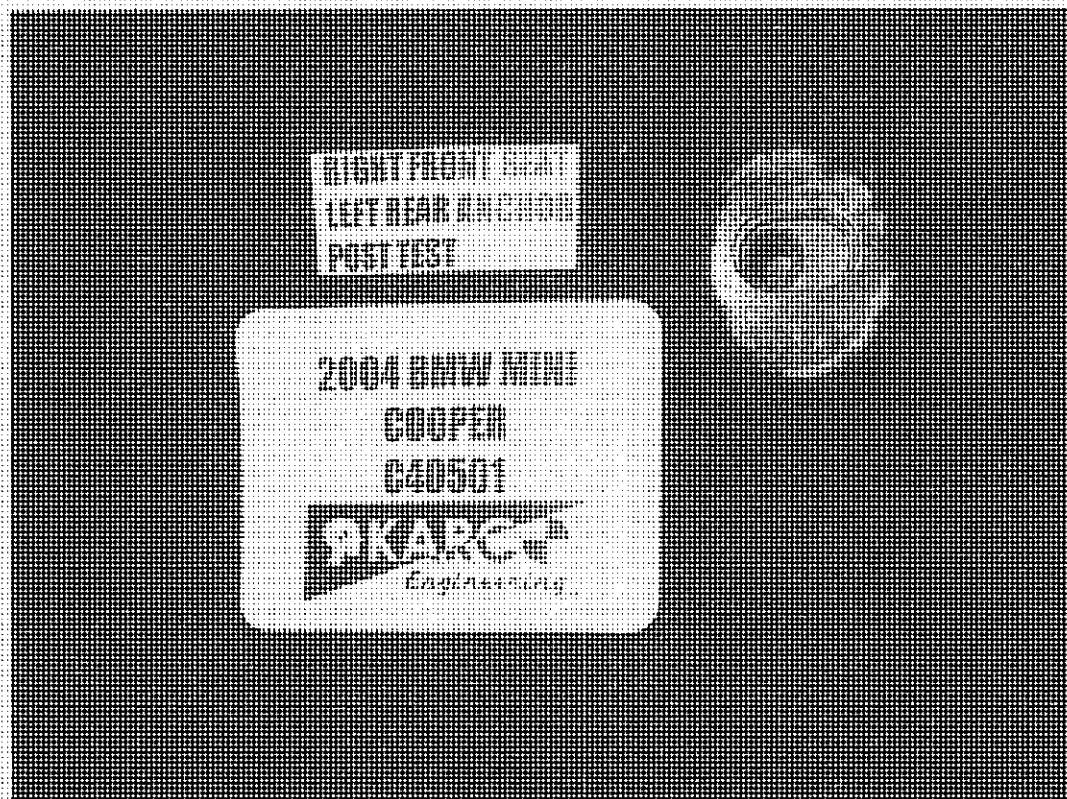


Figure A-76: Floor Pan Anchor, Right Front Seat, Post-Test

A-77

207-KA-04-001

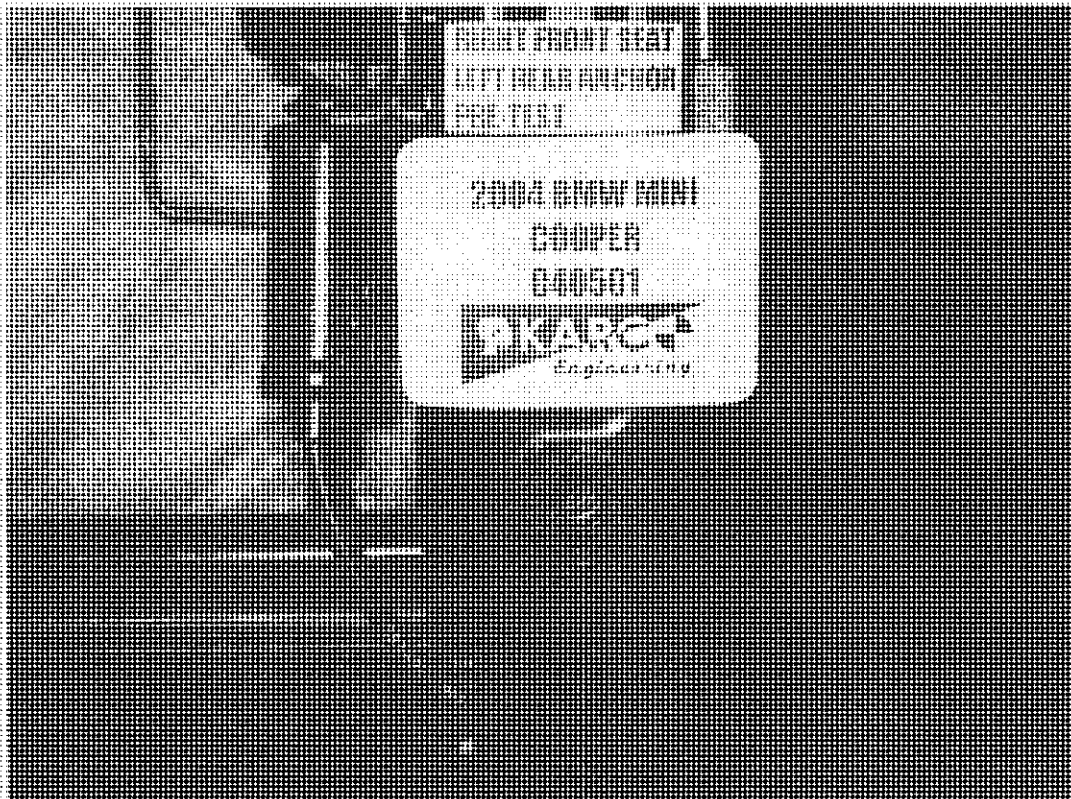


Figure A-77. Seat Anchor, Right Front Seat, Pre-Test

A-78

207-KA-04-001



Figure A-78. Seat Anchor, Right Front Seat, Post-Test

A-79

2004-01-26-000

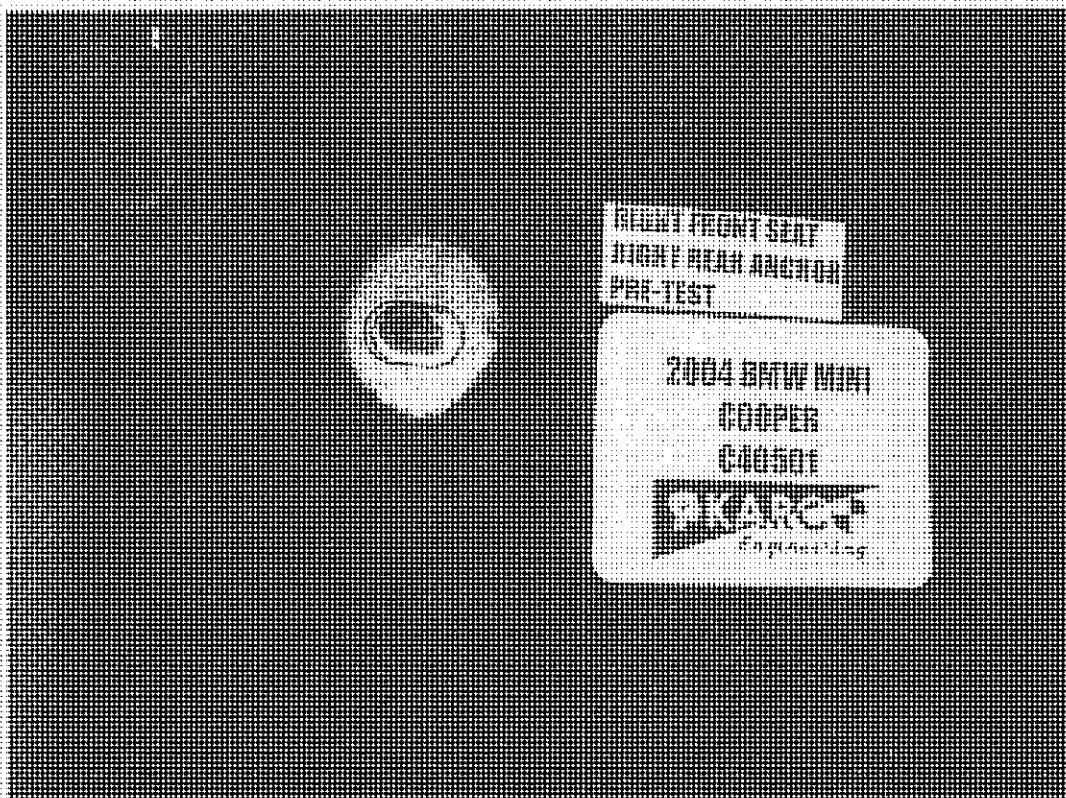


Figure A-79: Floor Pen Anchor, Right Front Seat, Pre-Test

A-80

2004-01-26-001

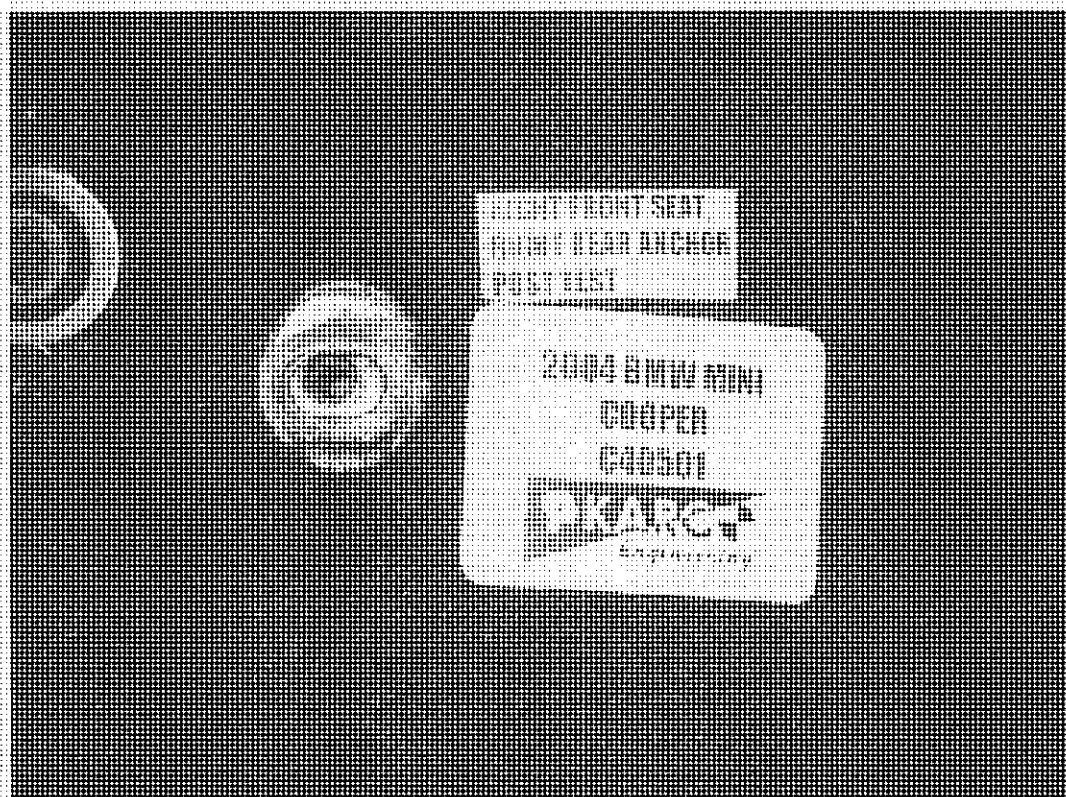


Figure A-80: Floor Pen Anchor, Right Front Seat, Post-Test

A.01

2004 BENTLEY MENS
COOPER
E48501

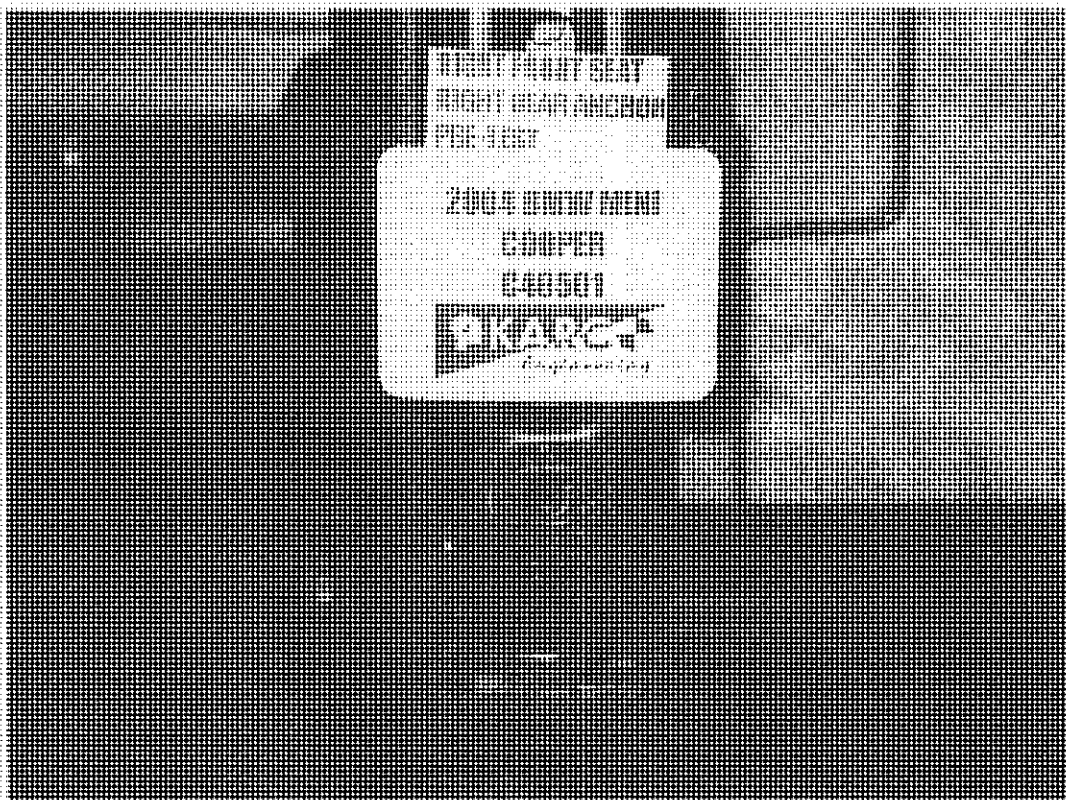


Figure A.01: Seat Anchor, Right Front Seat, Pre-Test

A.02

2004 BENTLEY MENS
COOPER
E48501



Figure A.02: Seat Anchor, Right Front Seat, Post-Test

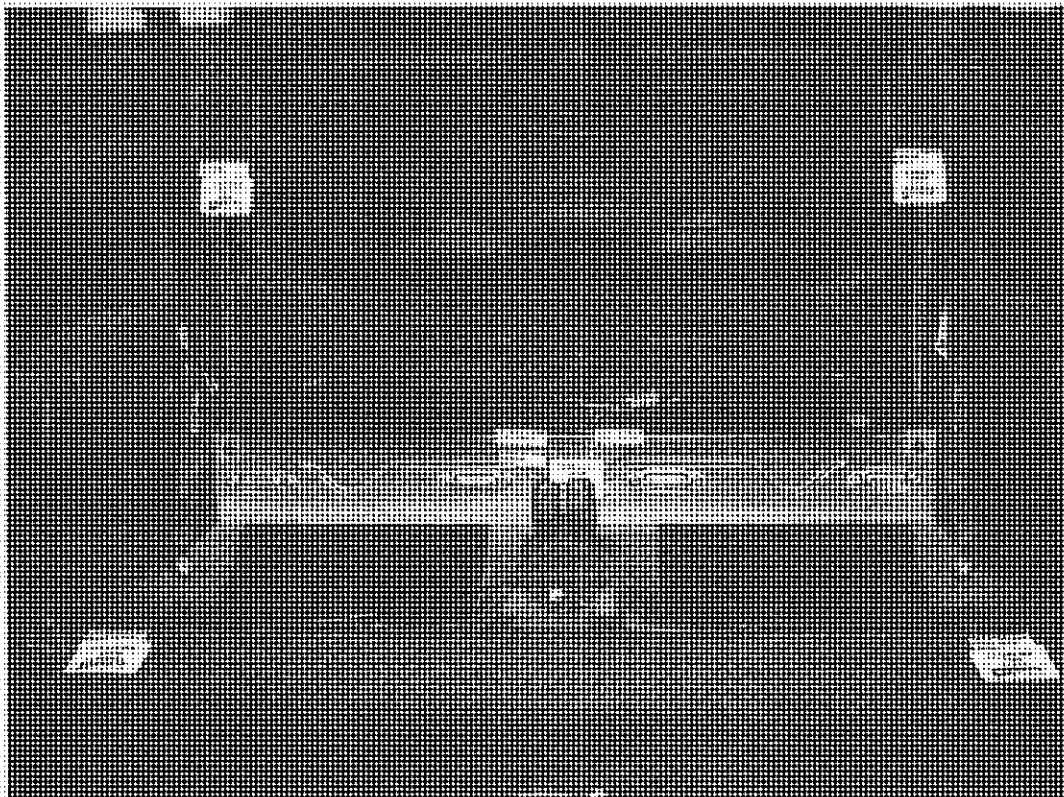


Figure A-83: Floor Pad Anchors, Rear Seat, Seat Cushion Overlay, Pre-Test

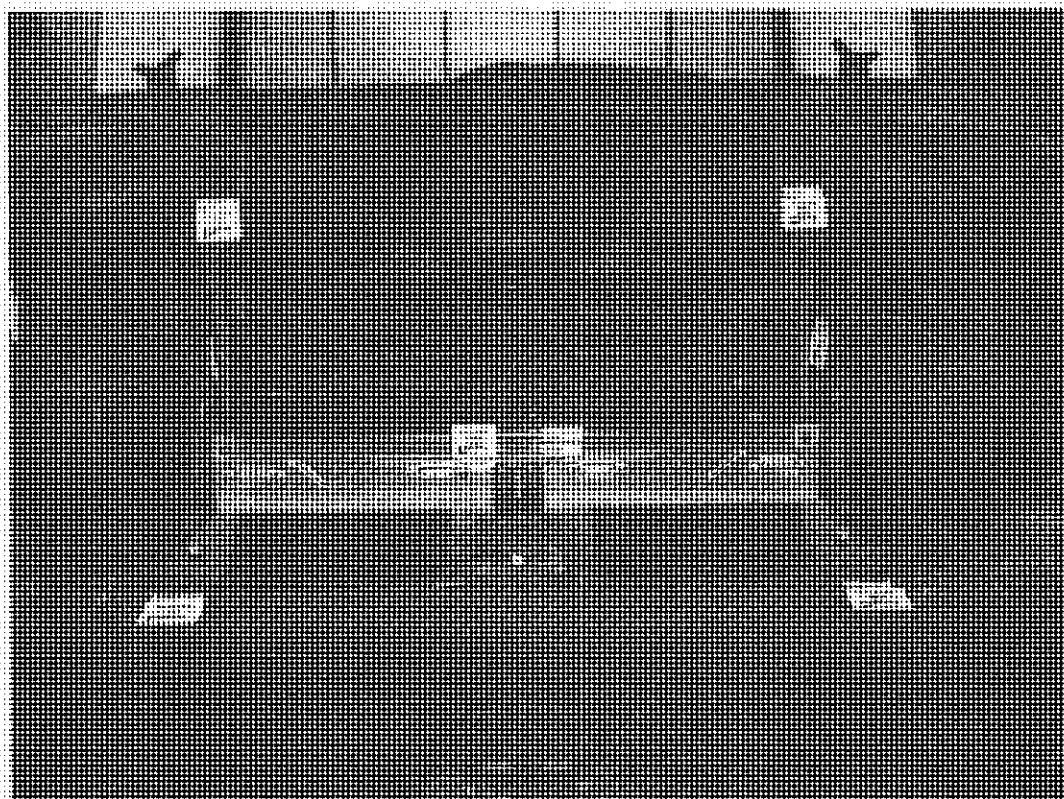


Figure A-84: Floor Pad Anchors, Rear Seat, Seat Cushion Overlay, Post-Test

P. 36

201-201-0001

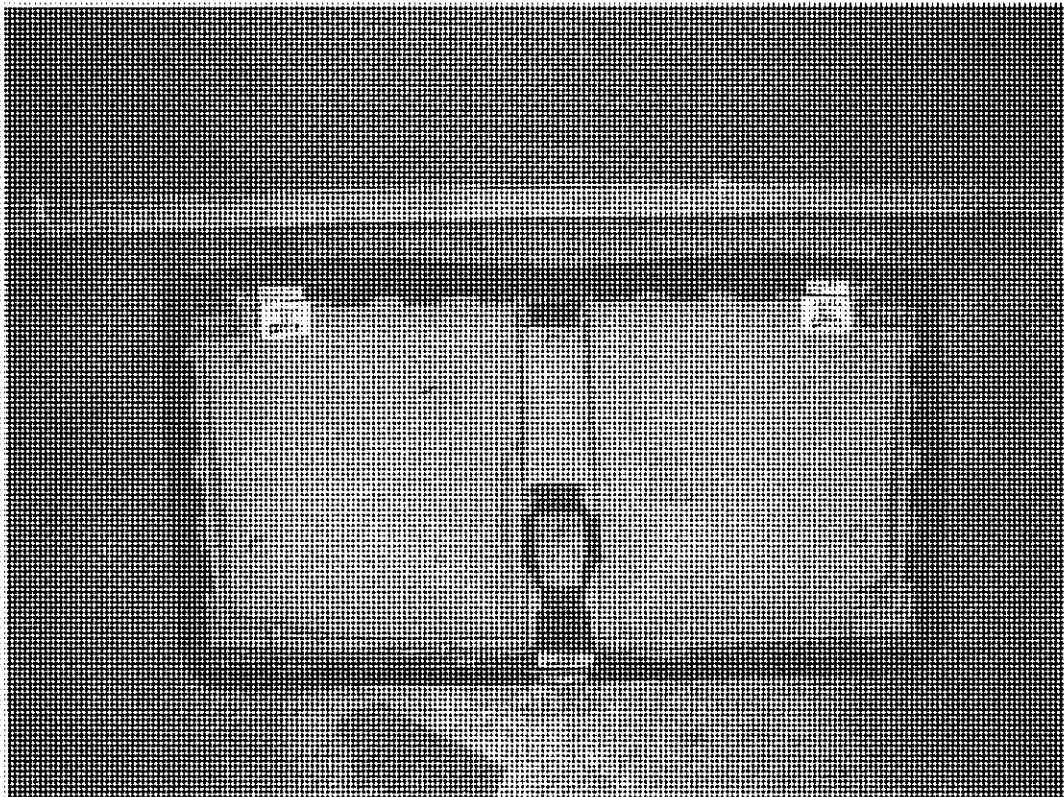


Figure A-46b: Seat Anchors, Rear Seat, Seat Cushion Overlay, Pre-Test

P. 37

201-201-0001

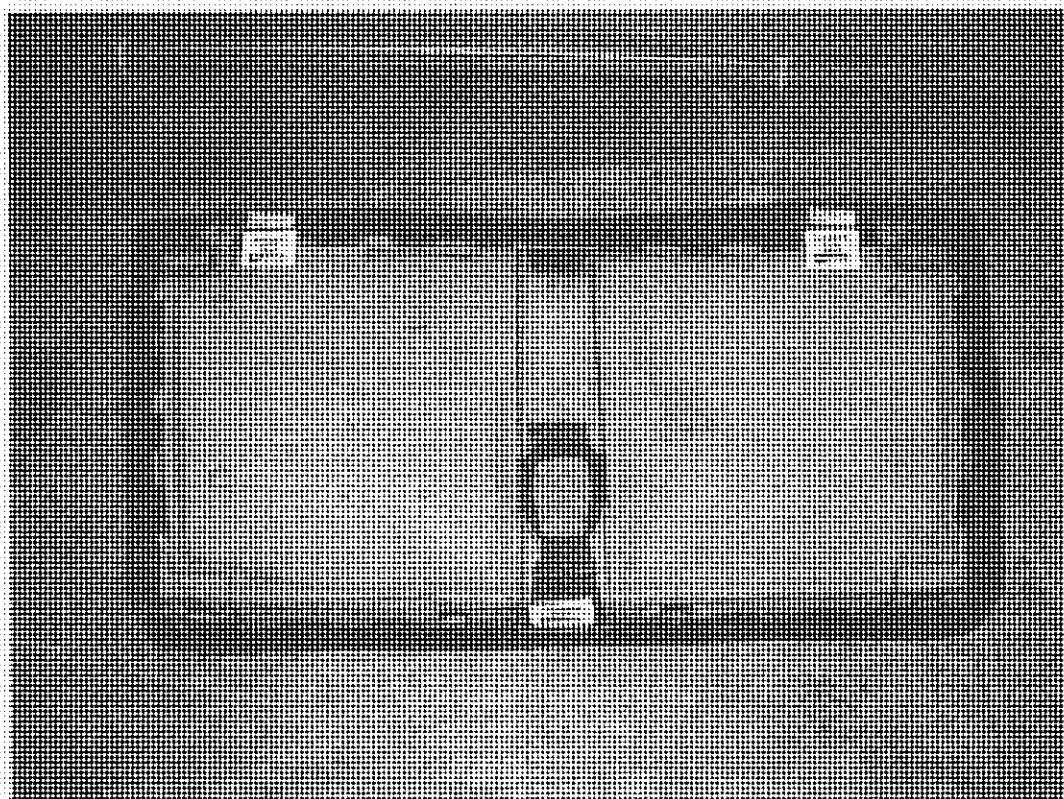


Figure A-46c: Seat Anchors, Rear Seat, Seat Cushion Overlay, Post-Test

A-87

2004 BMW MINI
COOPER
C40501

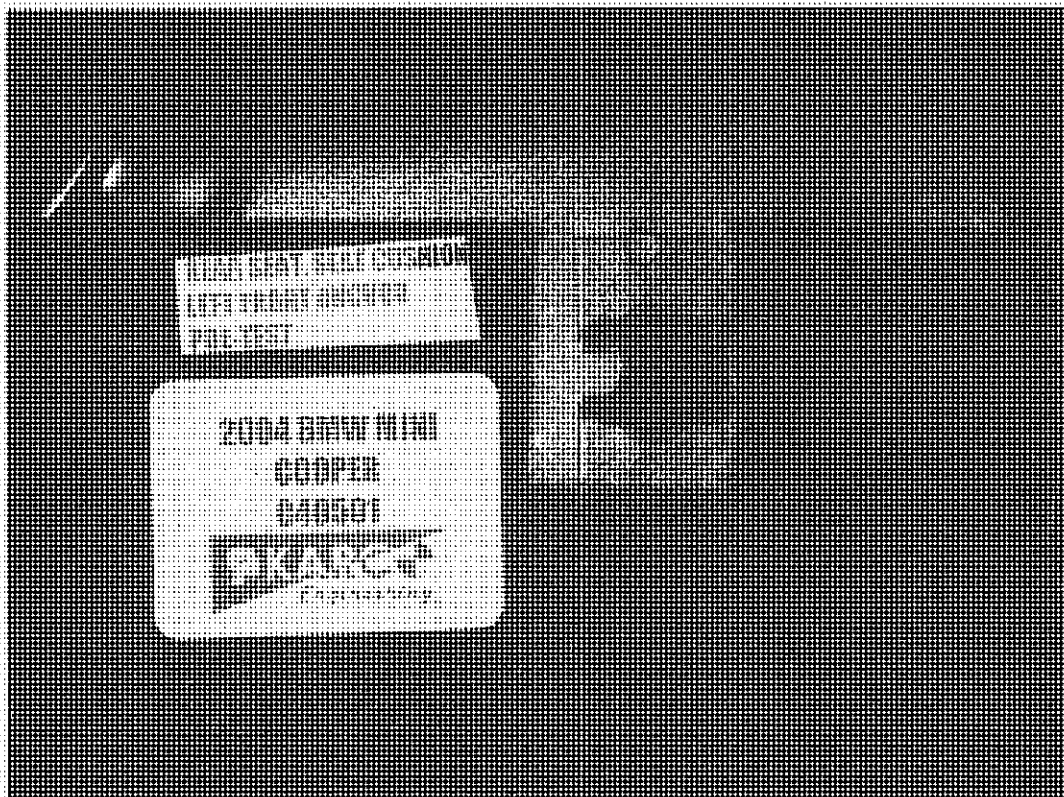


Figure A-87: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test

A-88

2004 BMW MINI
COOPER
C40501



Figure A-88: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

A-50

207 NOV 30 2011

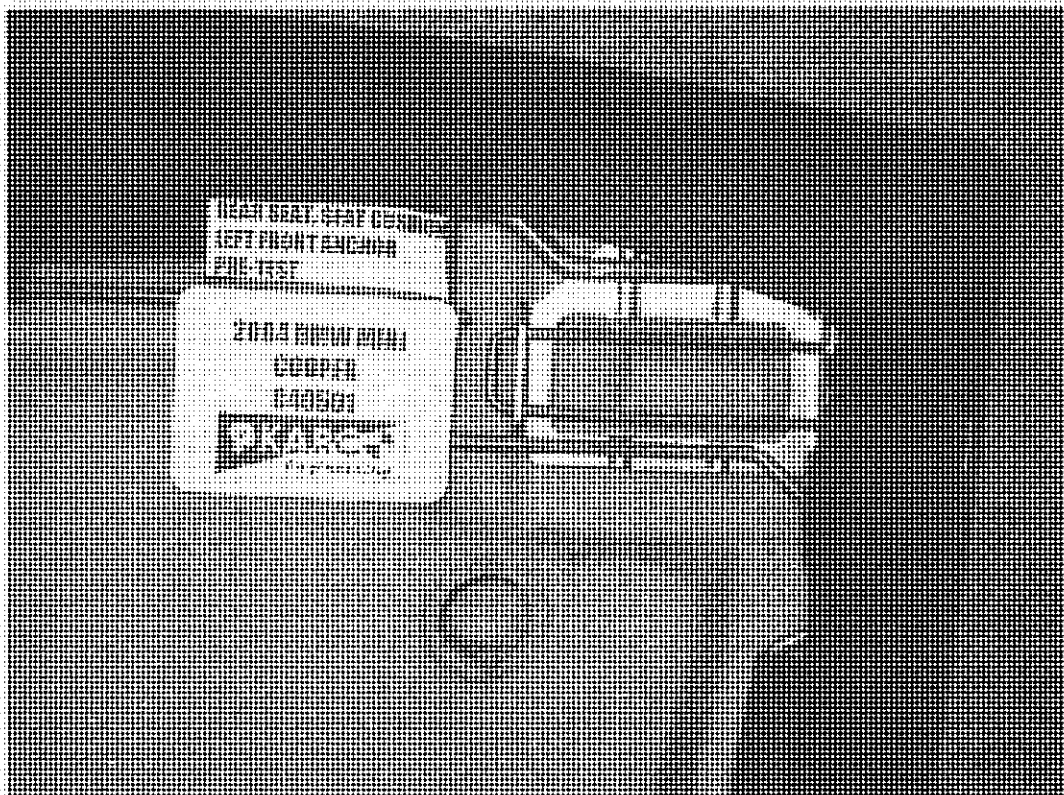


Figure A-89: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

A-51

207 NOV 30 2011

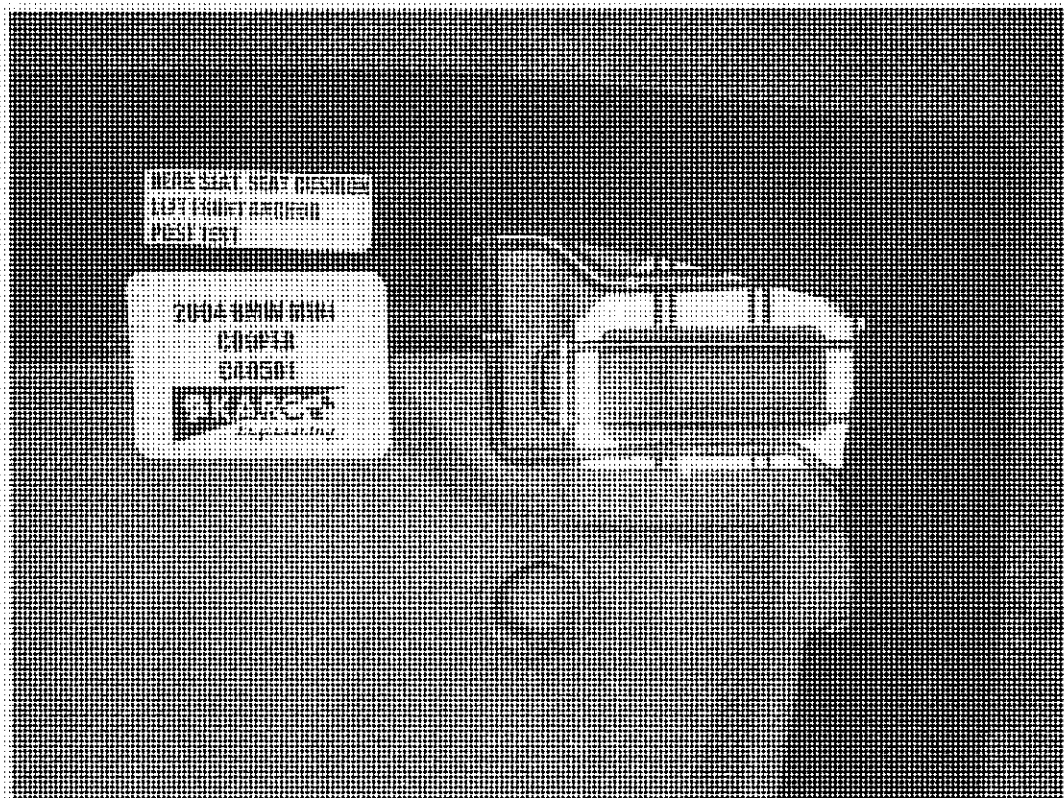


Figure A-90: Seat Anchor, Rear Seat, Seat Cushion, Post-Test

A-91

2005-06-01-001

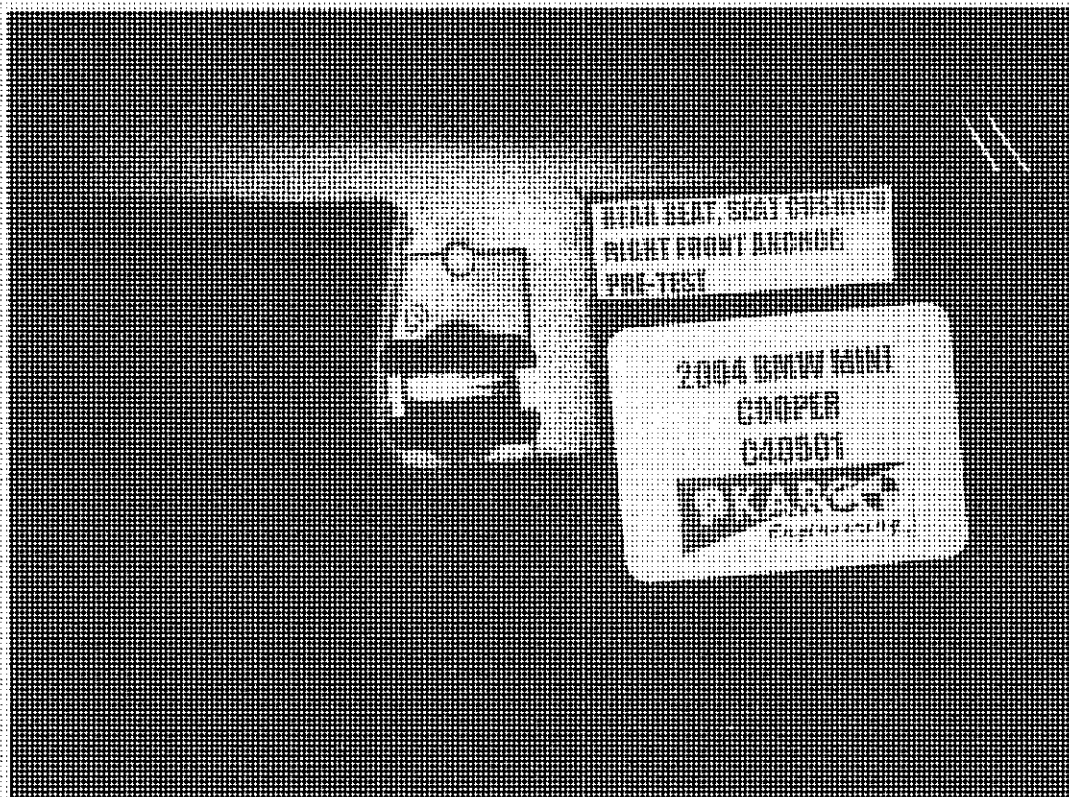


Figure A-91: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test

A-92

2005-06-01-001



Figure A-92: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

440

2014 BENTON
2014 BENTON

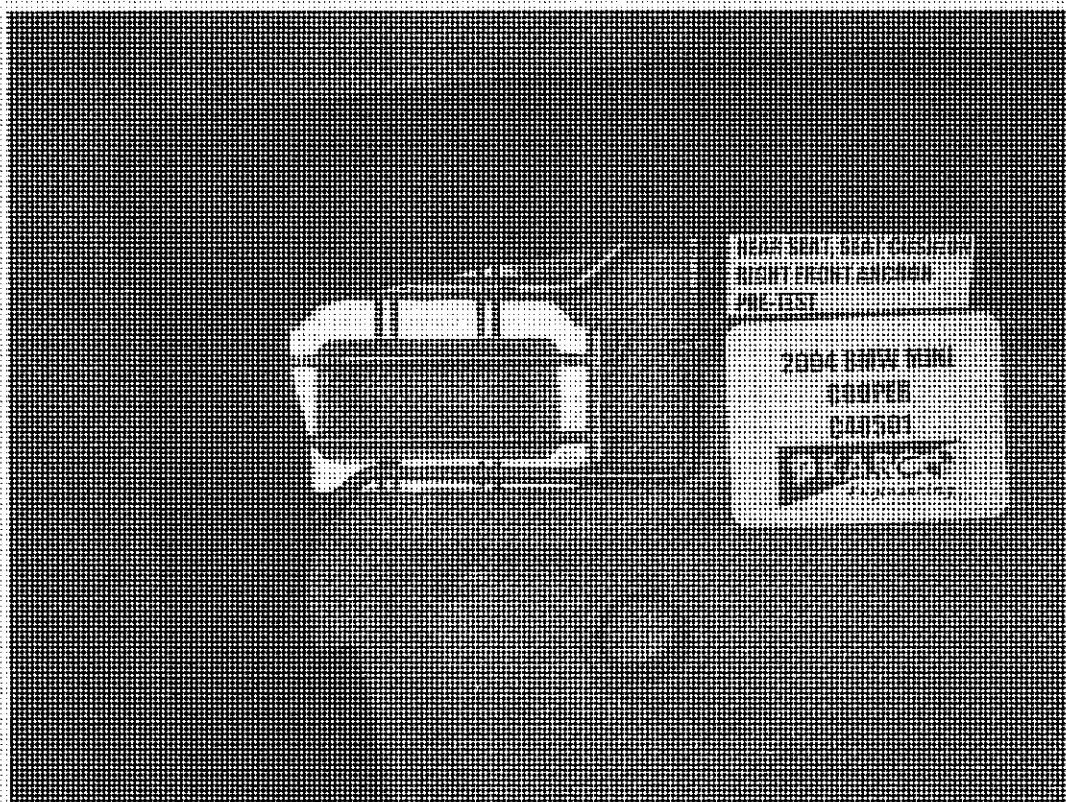


Figure A-93: Seat Anchor: Rear Seat, Seat Cushion, Pre-Test

441

2014 BENTON
2014 BENTON

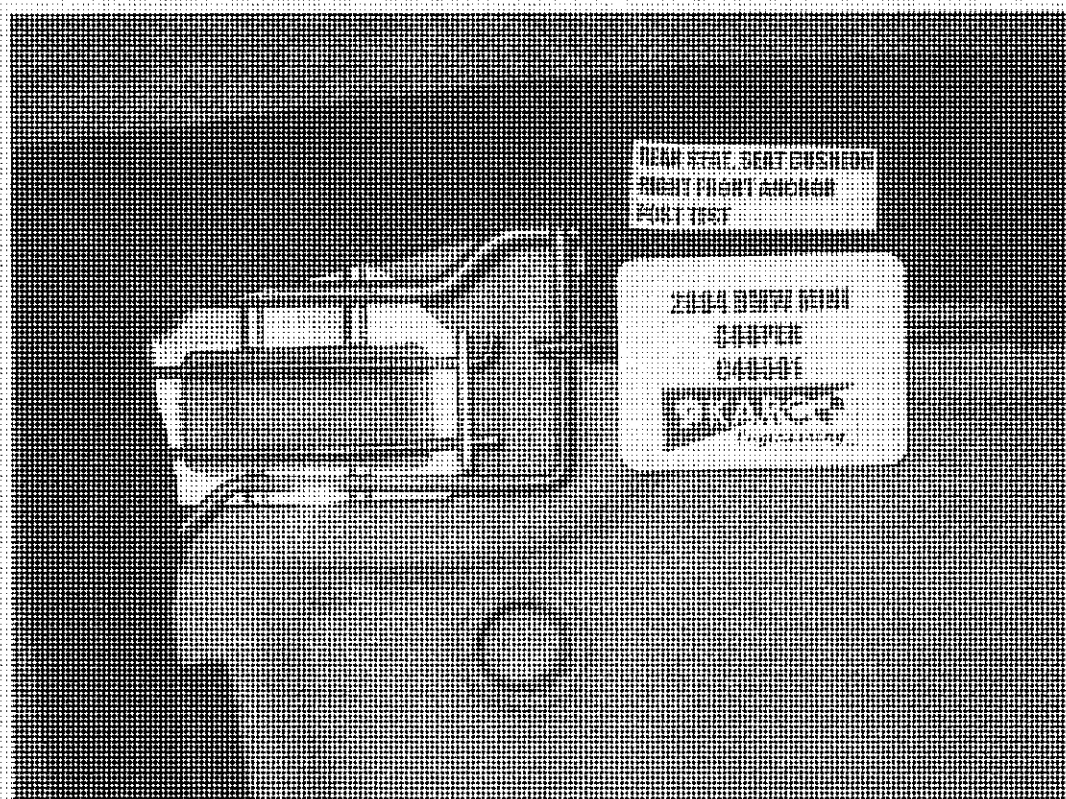


Figure A-94: Seat Anchor: Rear Seat, Seat Cushion, Post-Test

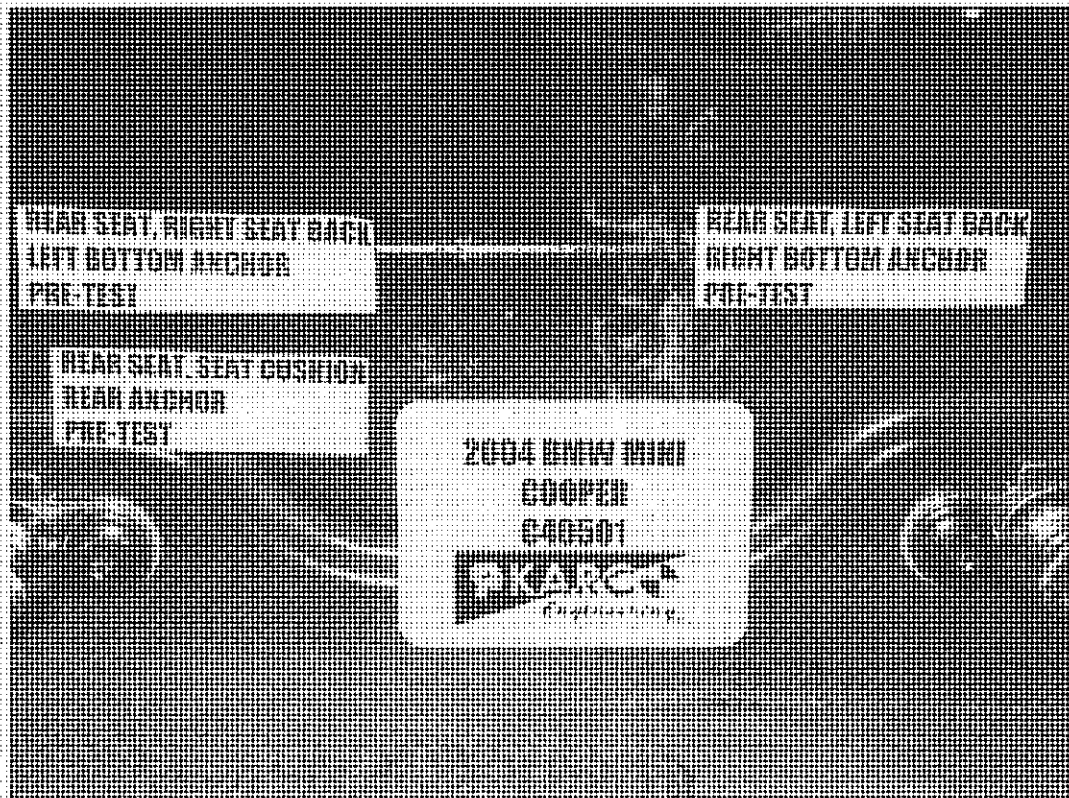


Figure A-90: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test

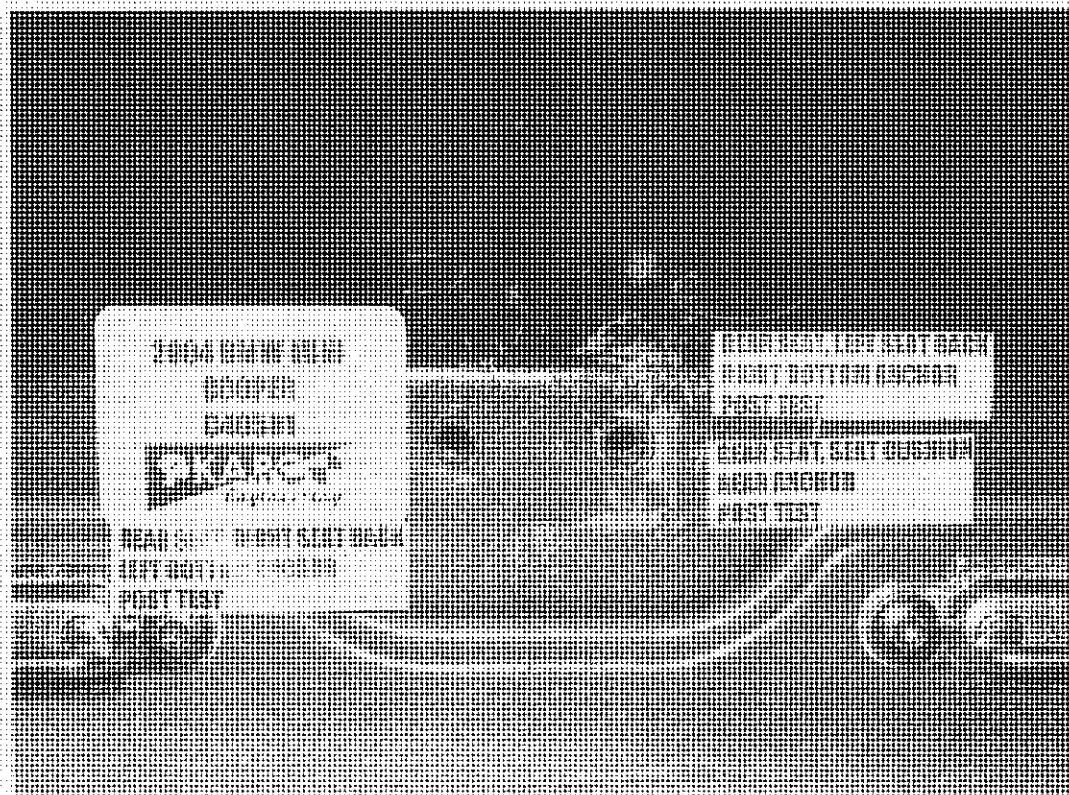


Figure A-90: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

A-97

207-AR-54-001

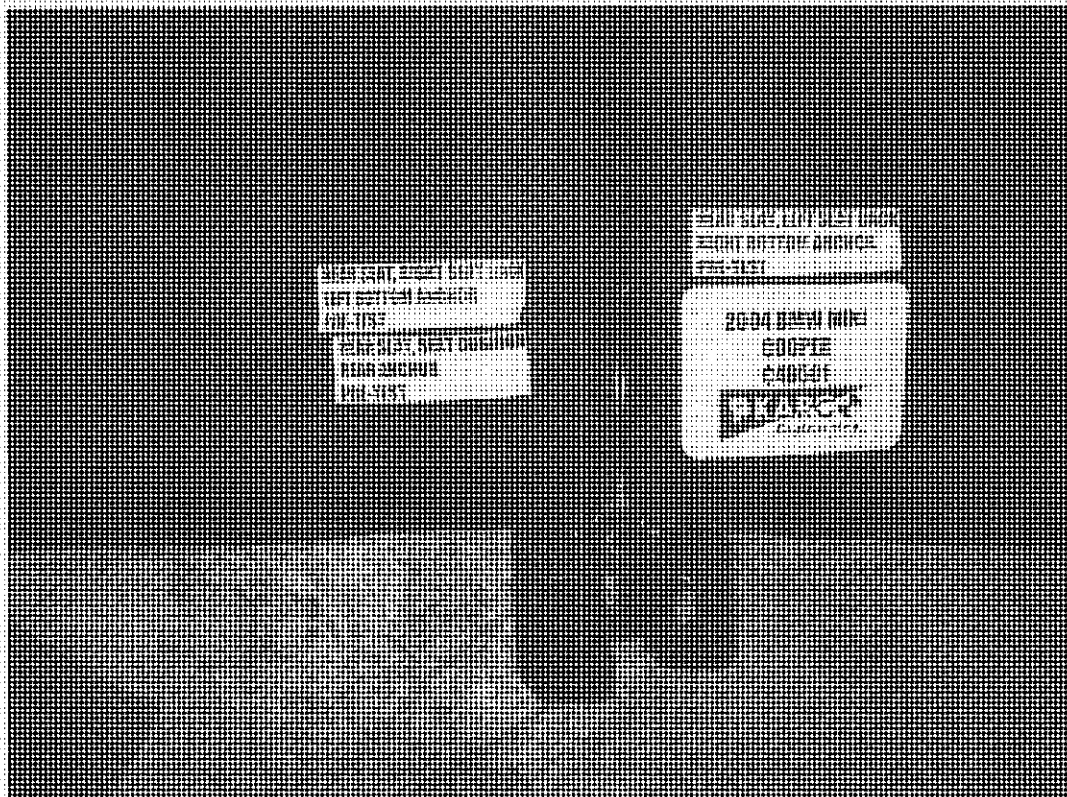


Figure A-97: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

A-98

207-AR-54-001

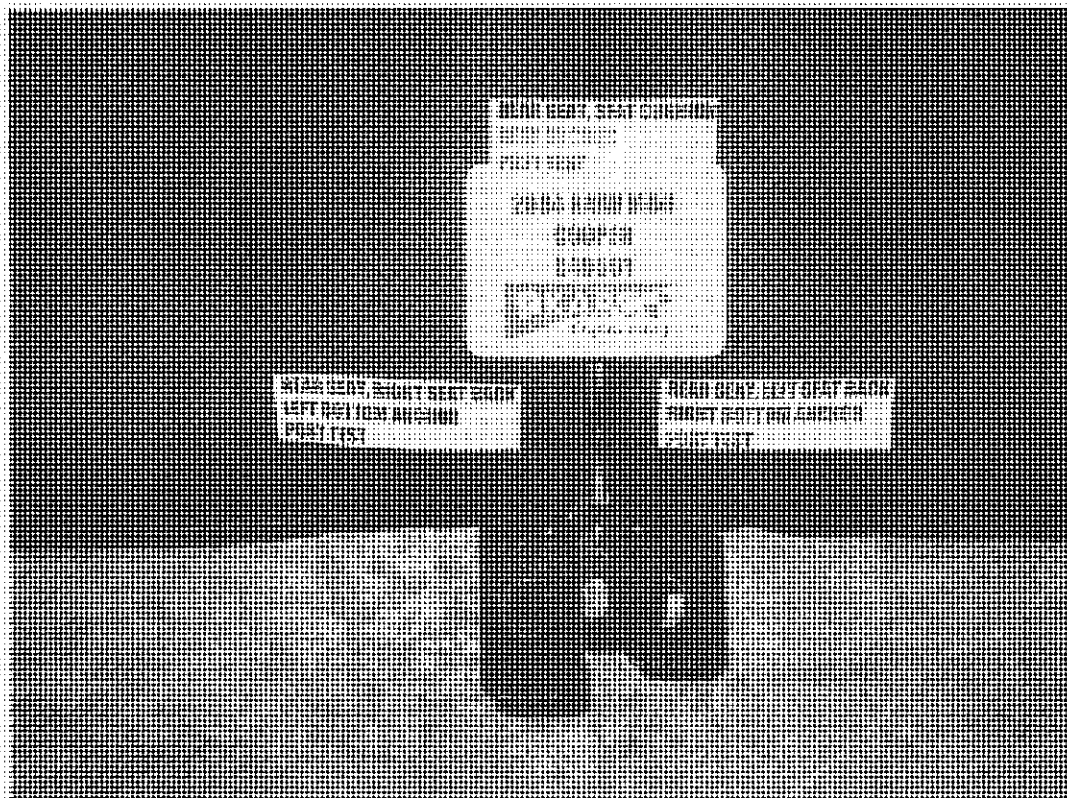


Figure A-98: Seat Anchor, Rear Seat, Seat Cushion, Post-Test

A-60

27 KAR-01-001



Figure A-99: Floor Pull Anchor, Rear Seat, Seat Cushion Pre-Test

A-101

27 KAR-01-001



Figure A-100: Floor Pull Anchor, Rear Seat, Seat Cushion Post-Test

A-01

201 NOV 31 2:1

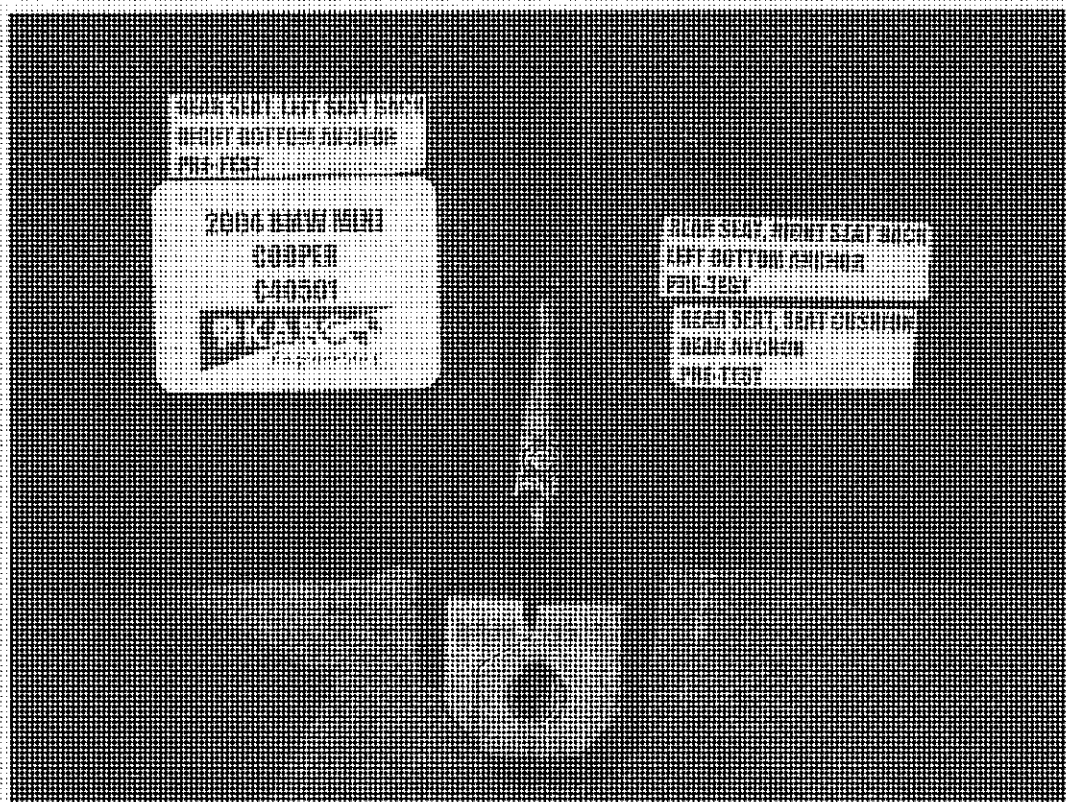


Figure A-101: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

A-19

201 JAN 24 10:1

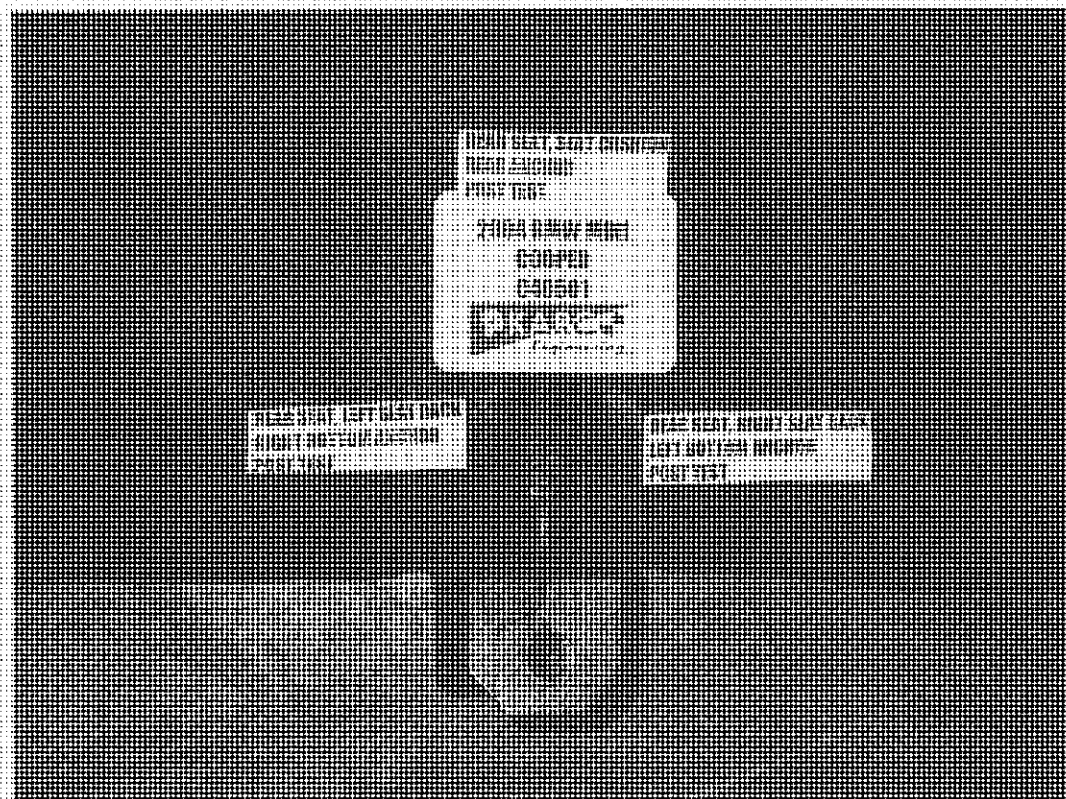


Figure A-102: Seat Anchor, Rear Seat, Seat Cushion, Post-Test

A-103

2011-12-10 10:31



Figure A-103: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

A-104

2011-12-10 10:31



Figure A-104: Seat Anchor, Rear Seat, Seat Cushion, Post-Test

A-05

20110924 04:31

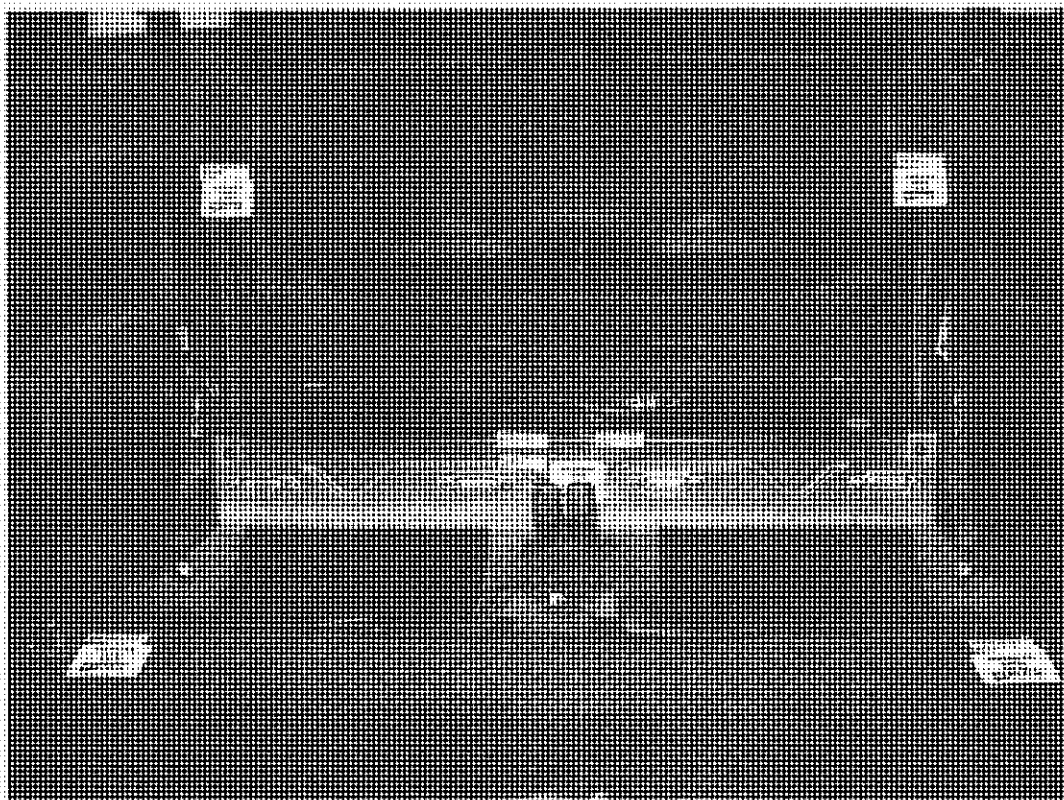


Figure A-105: Floor Pan Anchors, Rear Seat, Left Seat Back Overall: Pre-Test

A-119

20110924 04:31

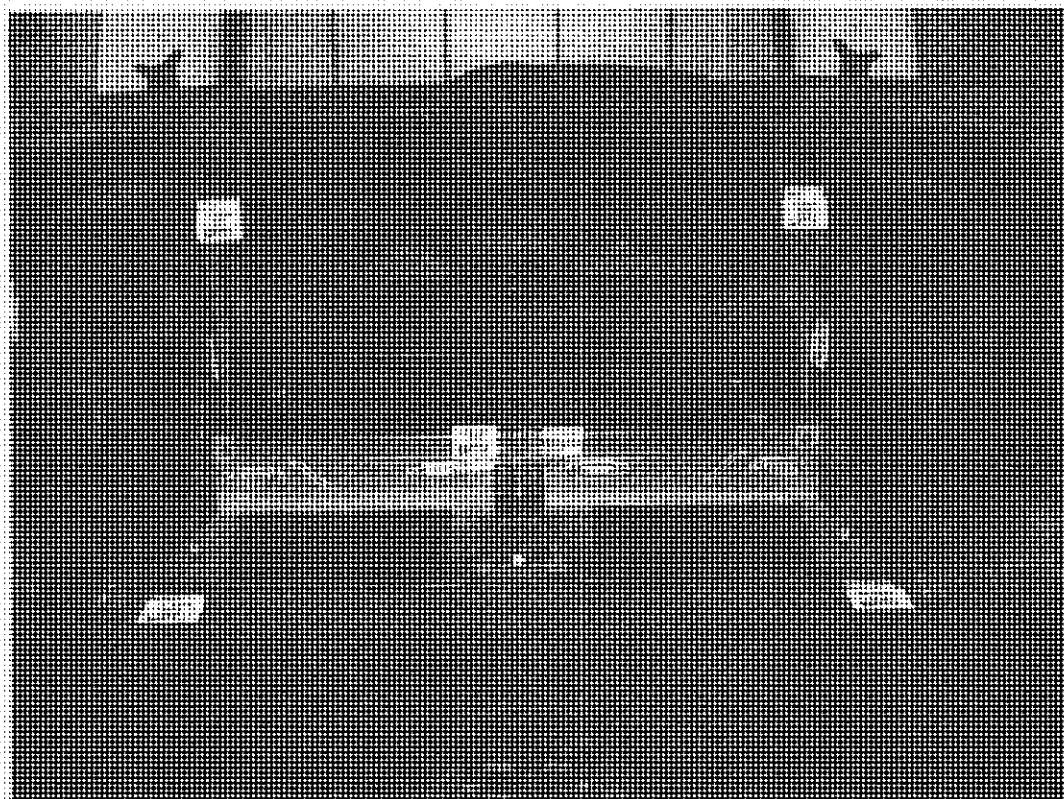


Figure A-105: Floor Pan Anchors, Rear Seat, Left Seat Back Overall: Post-Test

A-107

207-1025-34-001

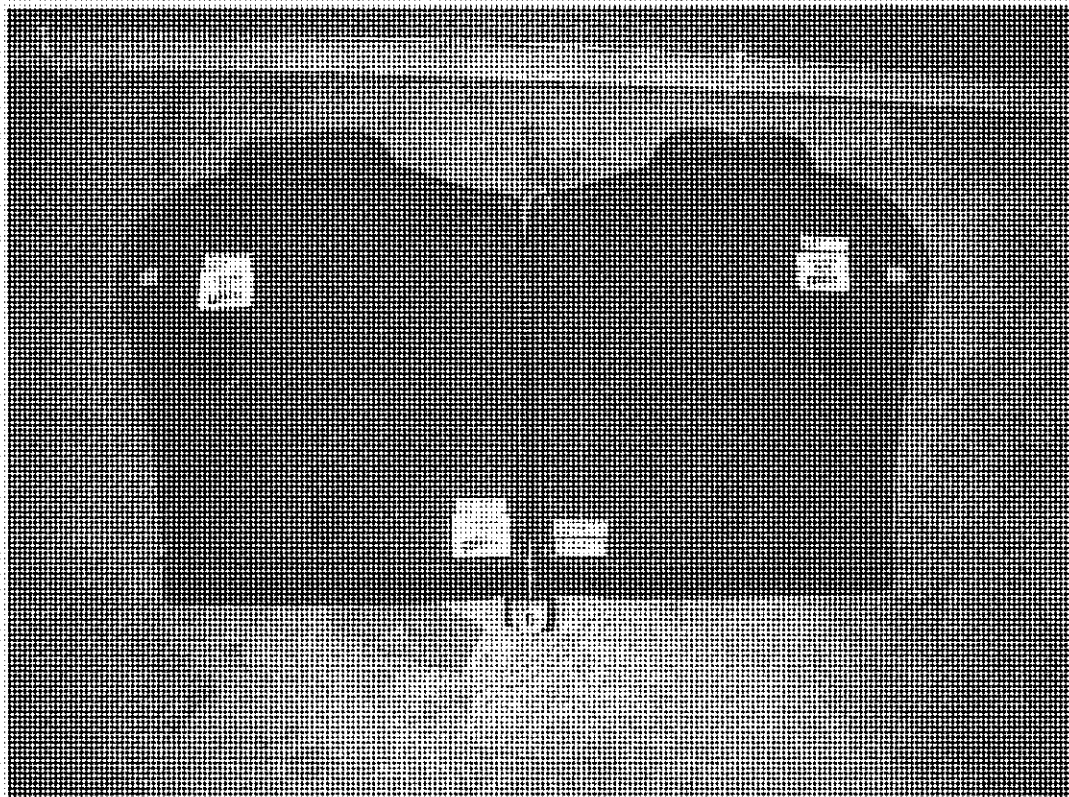


Figure A-107: Seat Anchors, Rear Seat, Left Seat Back Cover, Pre-Test

A-108

207-1025-34-001



Figure A-108: Seat Anchors, Rear Seat, Left Seat Back Cover, Post-Test

A-109

2014-03-06-01

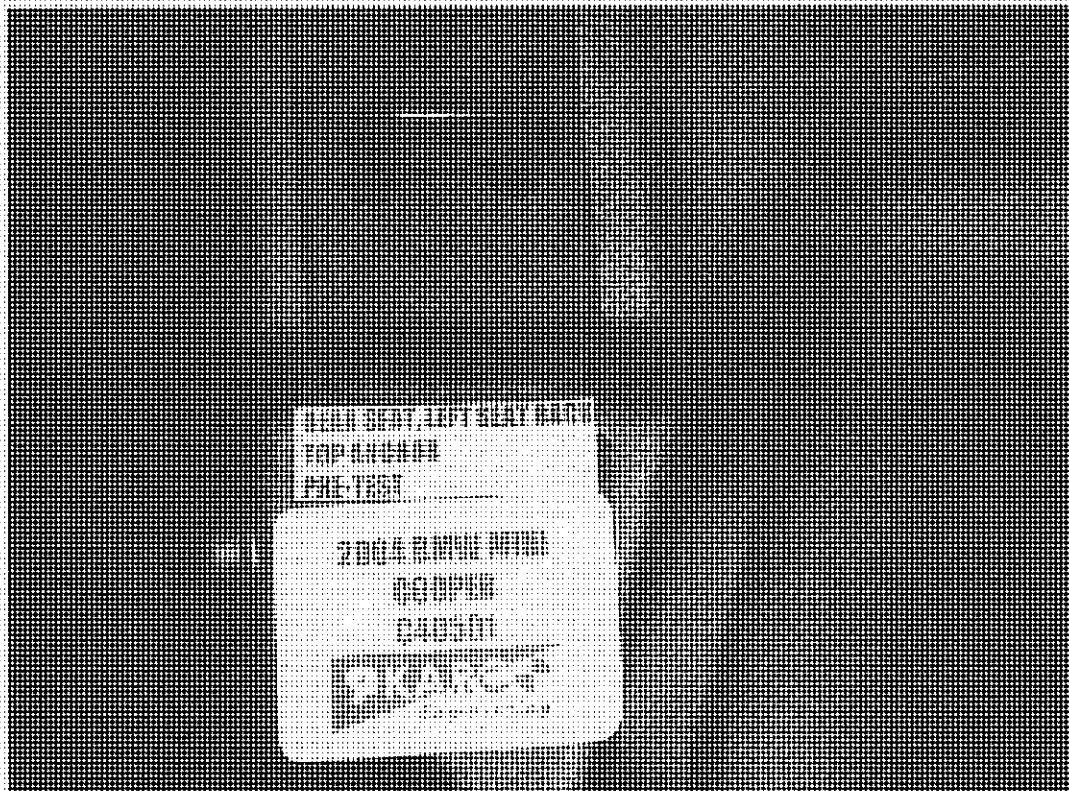


Figure A-109: Floor Pan Anchor, Rear Seat, Left Seat Back, Pot Test

A-110

2014-03-06-01

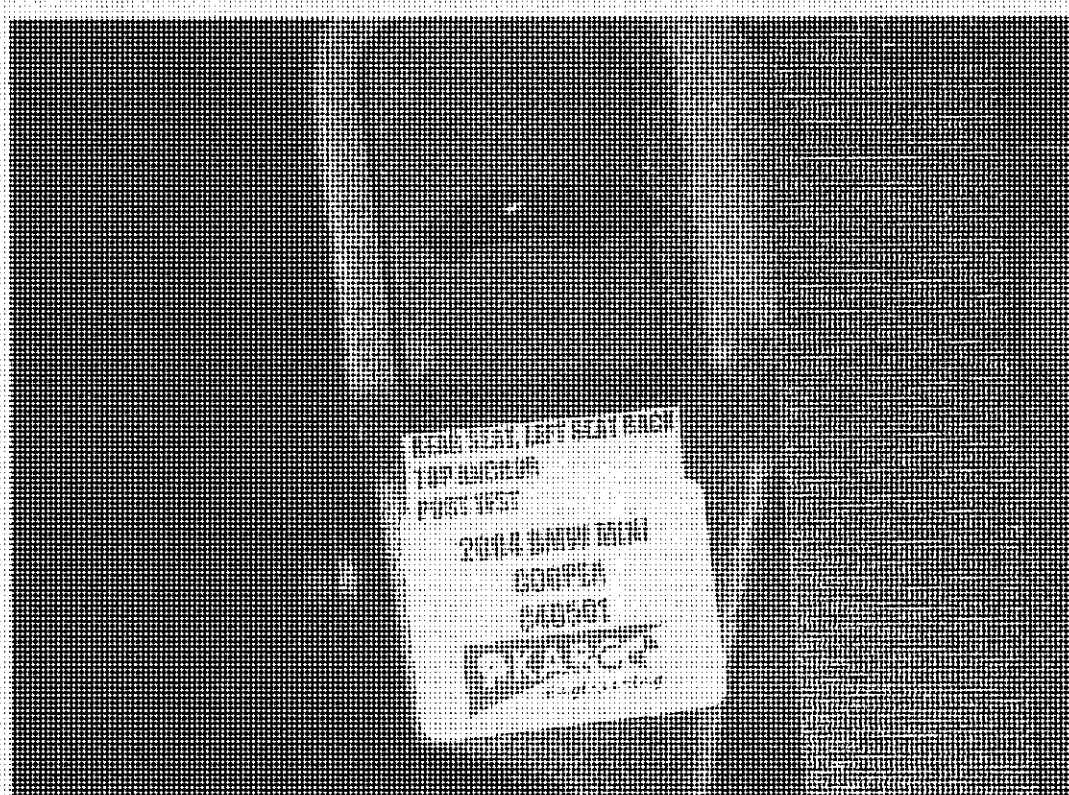


Figure A-110: Floor Pan Anchor, Rear Seat, Left Seat Back, Pot Test

A-111

207-AP-34-501

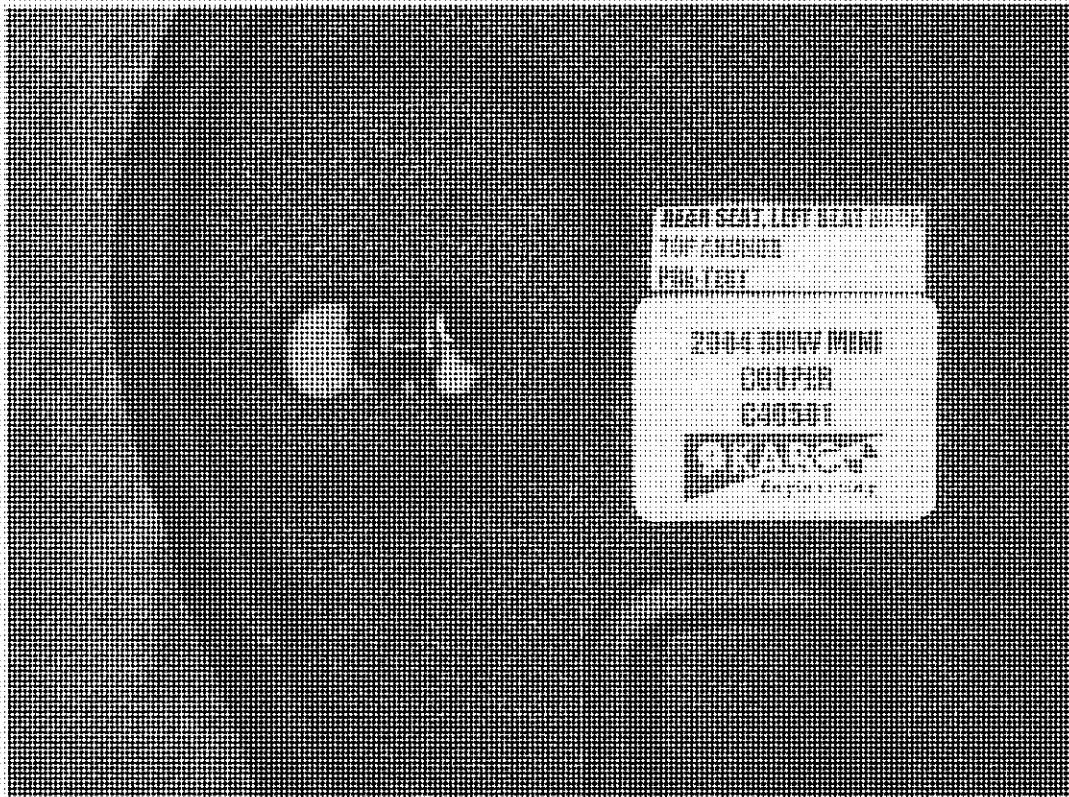


Figure A-111: Stool Anchor - Rear Seat, Left Seat Back, Pre-Test

A-112

207-AP-34-501

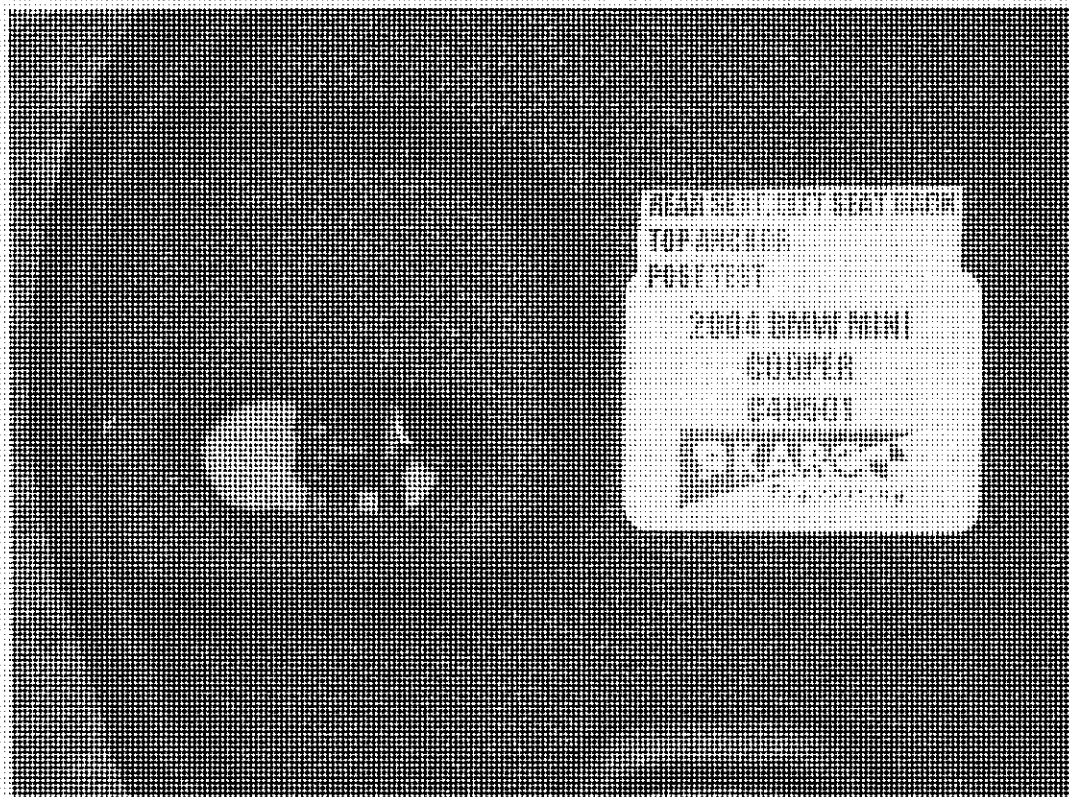


Figure A-112: Stool Anchor - Rear Seat, Left Seat Back, Post-Test

A-13

2014-06-06 09:01



Figure A-113: Floor Pan Anchor, Rear Seat, Left Seat Back, Pic Test

A-14

2014-06-06 09:01

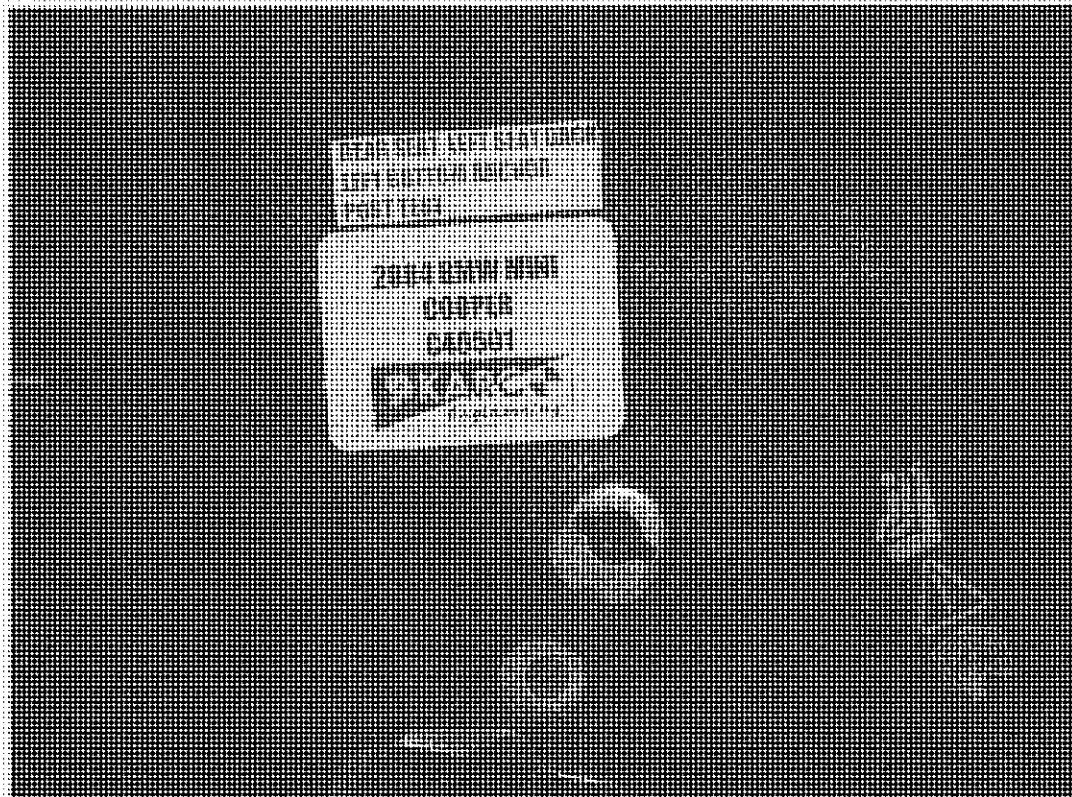


Figure A-114: Floor Pan Anchor, Rear Seat, Left Seat Back, Pic Test

A-115

207-625-06-001

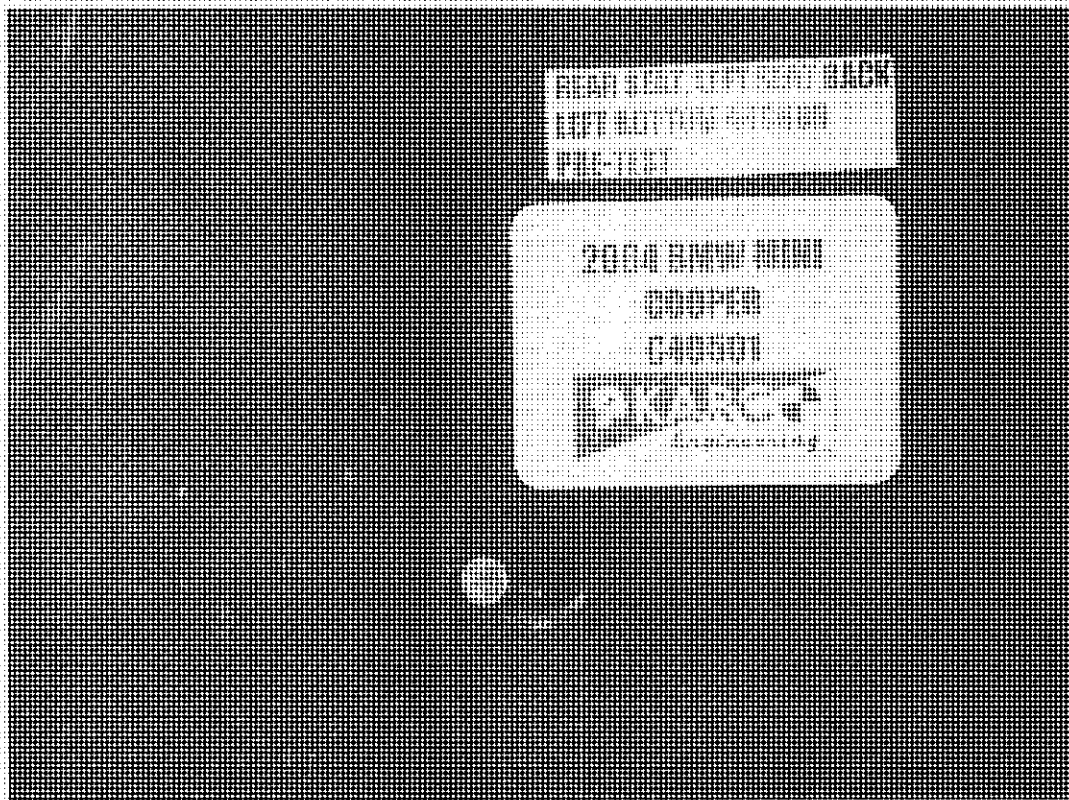


Figure A-115: Shot Anchor, Rear Shot, Left Shot Back, Pin-Tail

A-116

207-625-06-001

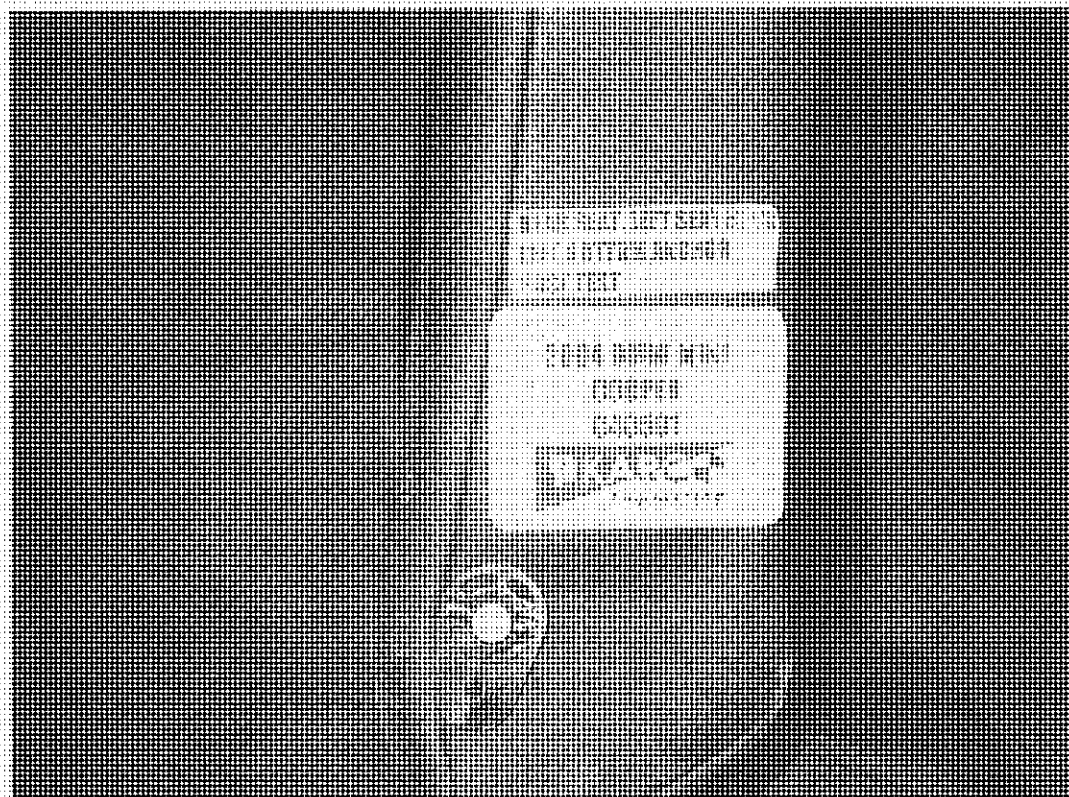


Figure A-116: Shot Anchor, Rear Shot, Left Shot Back, Pin-Tail

A-117

2007-02-04 00:00

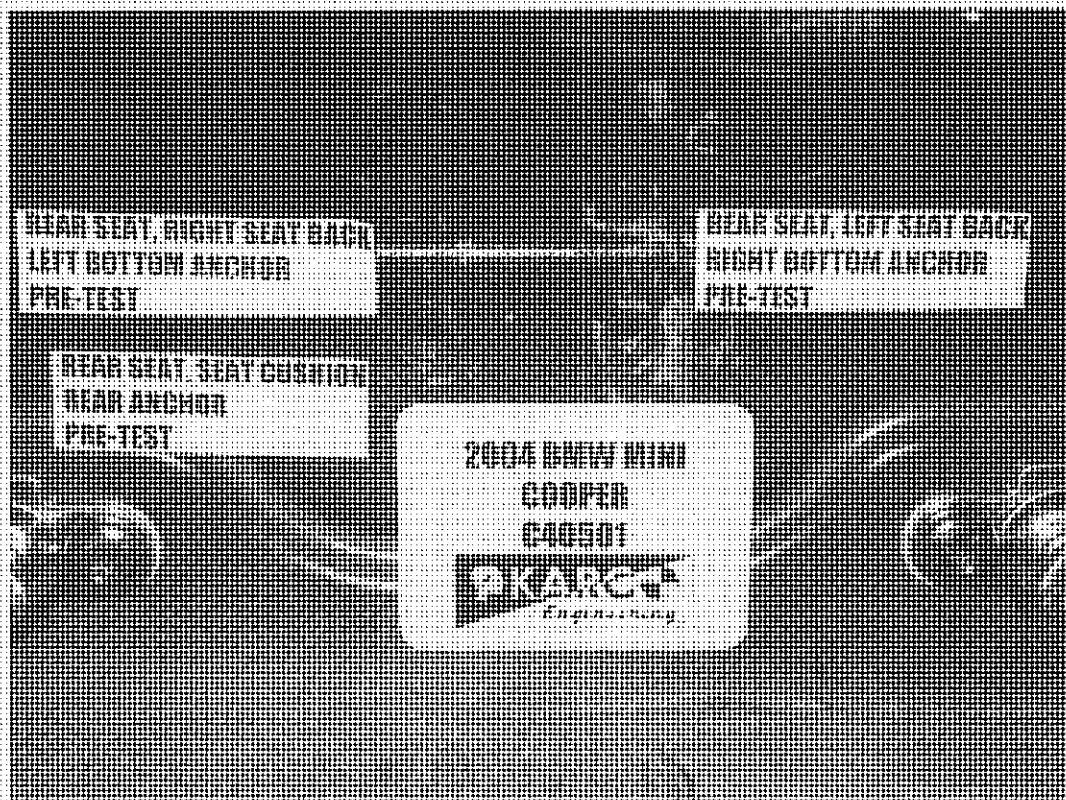


Figure A-117: Floor Pan Anchor, Rear Seat, Left Seat Back, Pre-Test

A-118

2007-02-04 00:00

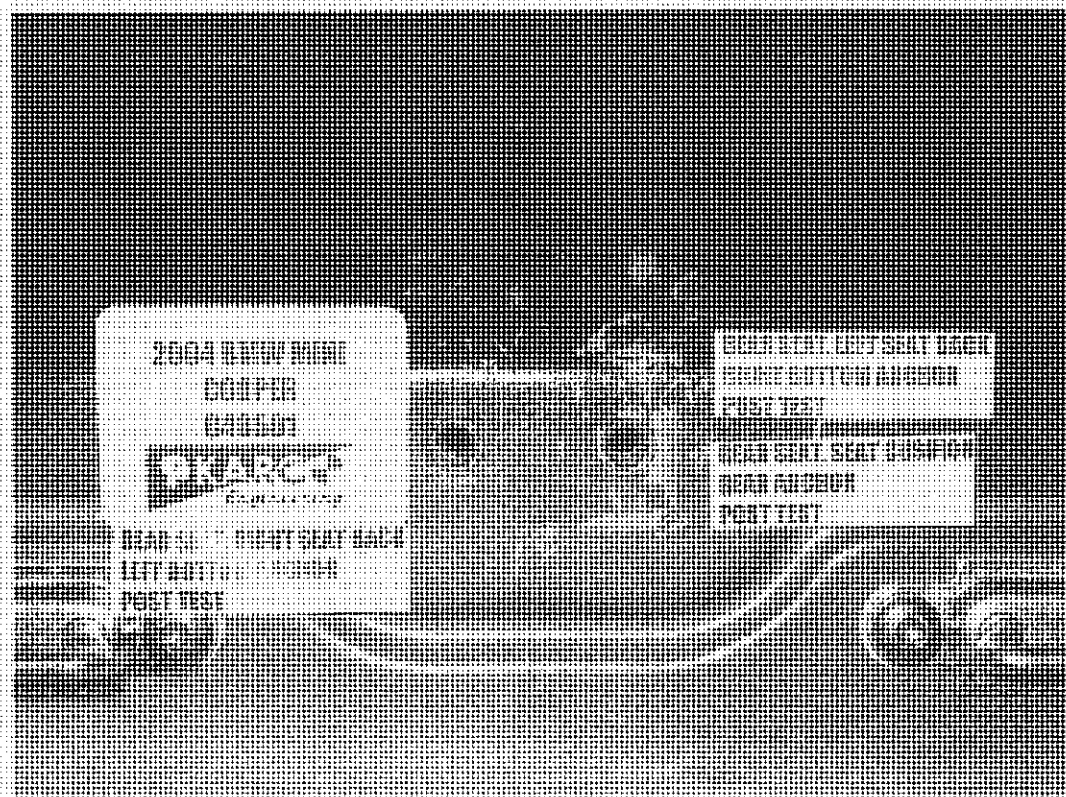


Figure A-118: Floor Pan Anchor, Rear Seat, Left Seat Back, Post-Test

A-119

2004-08-01-001

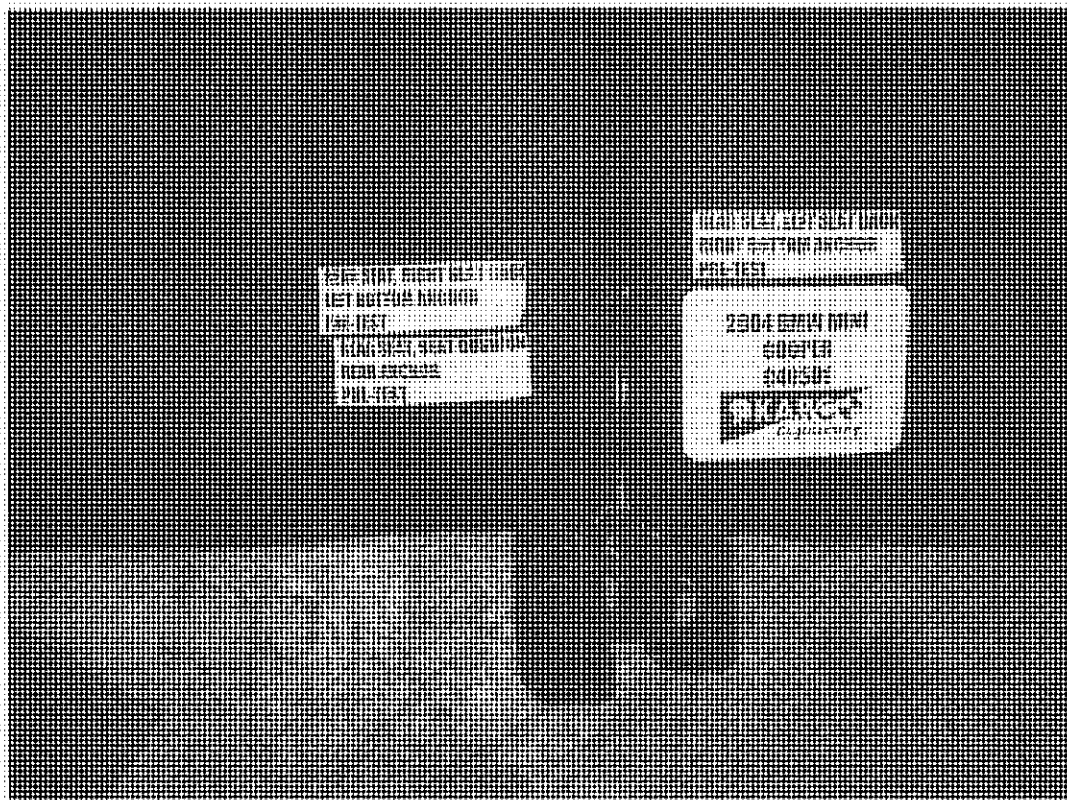


Figure A-119: Seat Anchor, Rear Seat, Left Seat Back, Pre-Test

A-120

2004-08-01-001

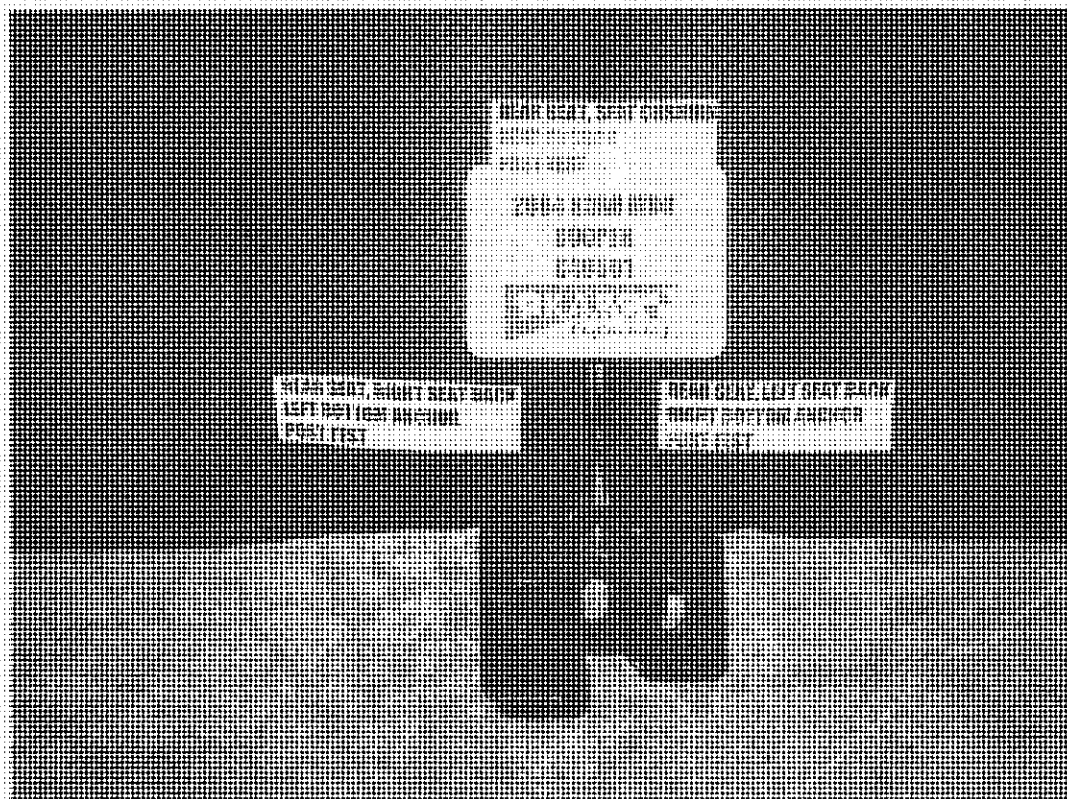


Figure A-120: Seat Anchor, Rear Seat, Left Seat Back, Post-Test

4-121

Figure A-121

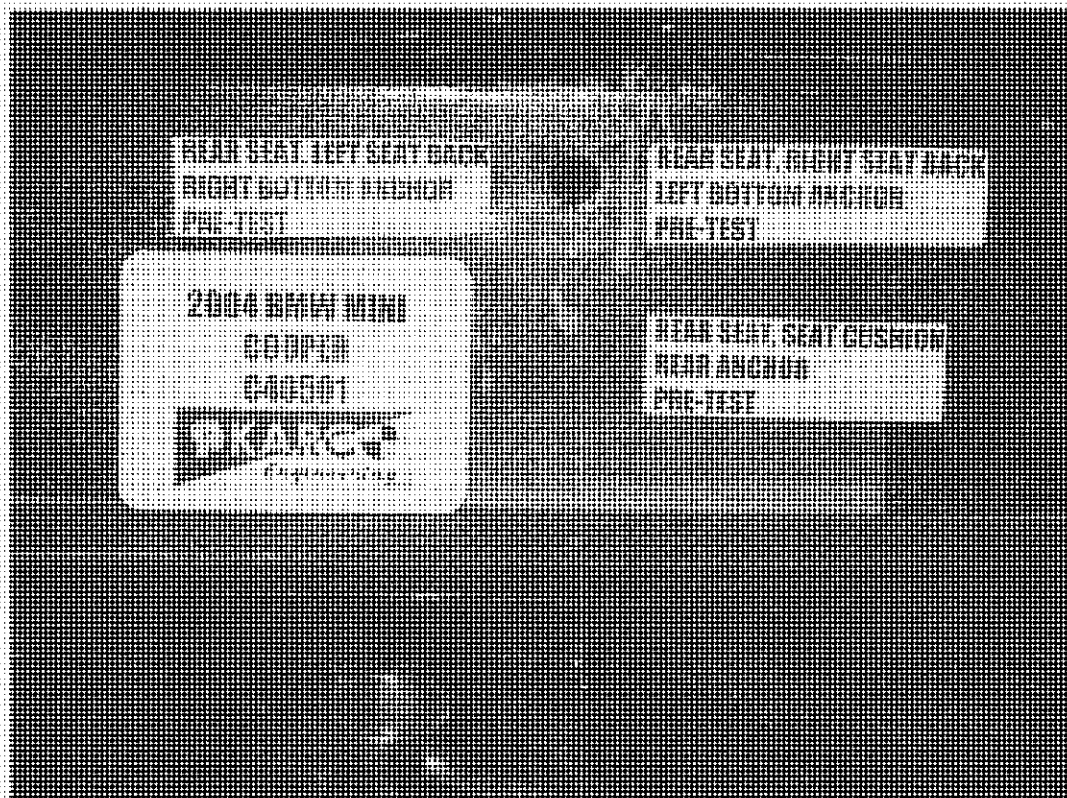


Figure A-121: Floor Pan Anchor, Rear Seat, Left Seat Back, Pre-Test

4-122

Figure A-122



Figure A-122: Floor Pan Anchor, Rear Seat, Left Seat Back, Post-Test

4-125

2004 93177 MINI
COOPER
040001

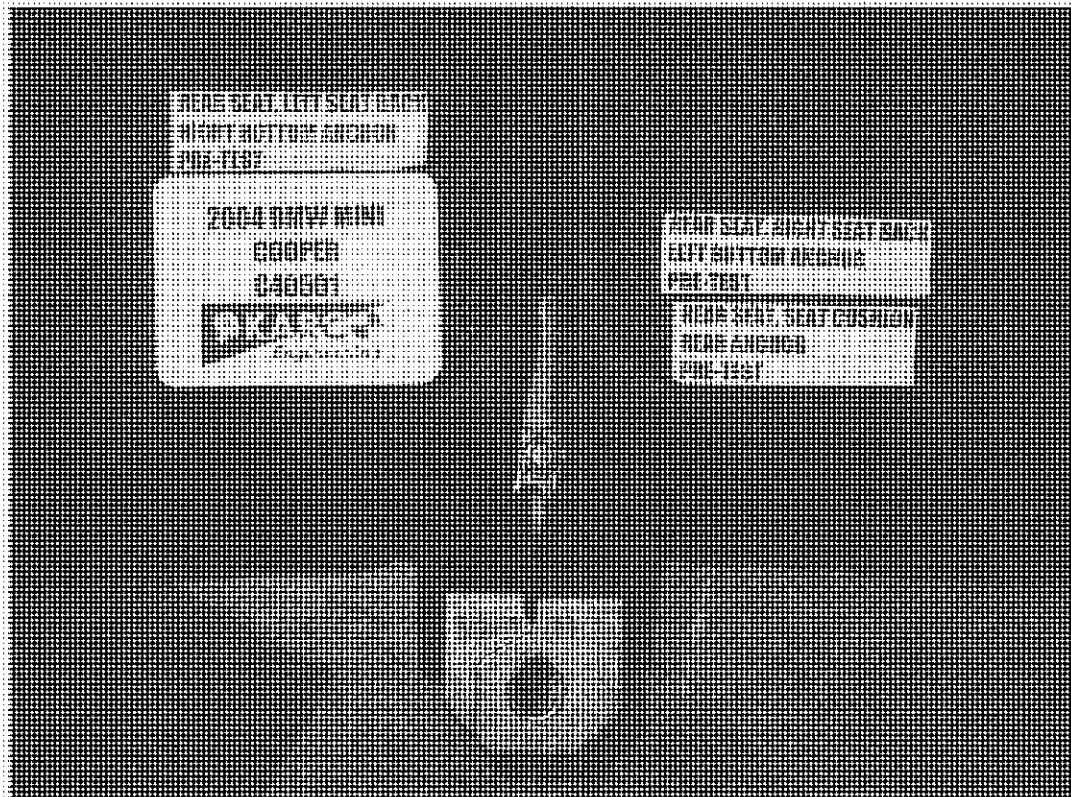


Figure A-125: Seat Anchor, Rear Seat, Left Seat Back, Pre-Test

4-124

2004 93177 MINI
COOPER
040001

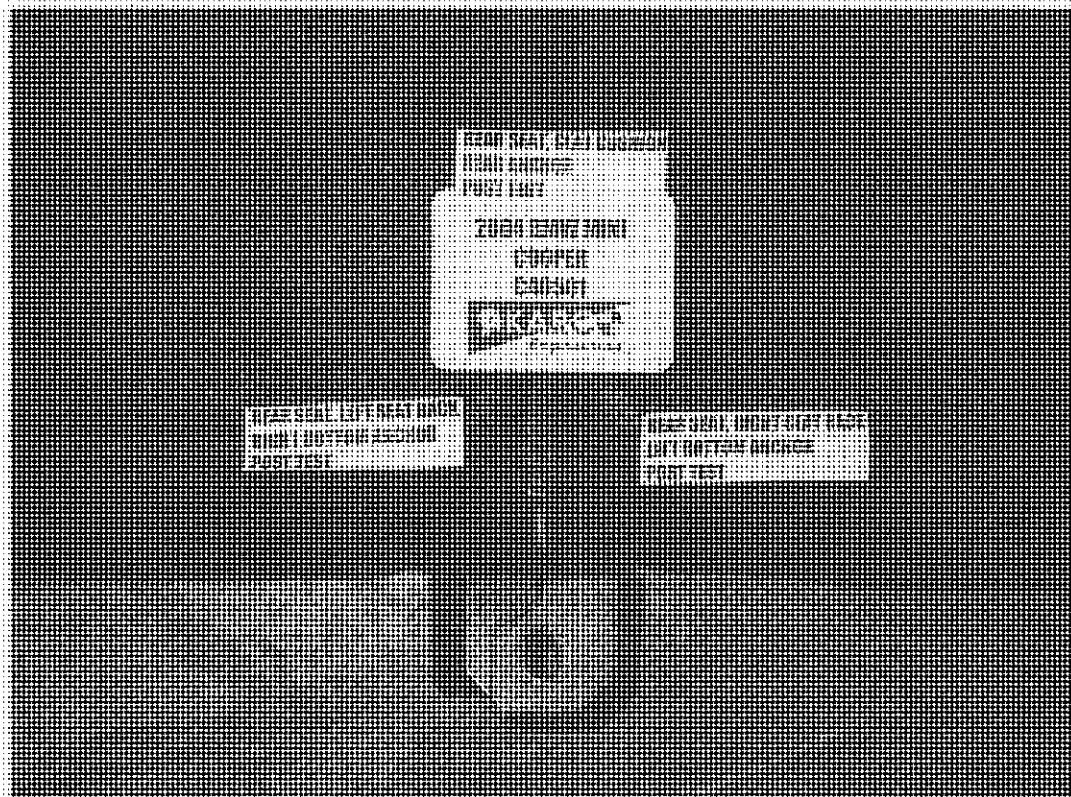


Figure A-124: Seat Anchor, Rear Seat, Left Seat Back, Post-Test

A-125

207 10/15/04 001

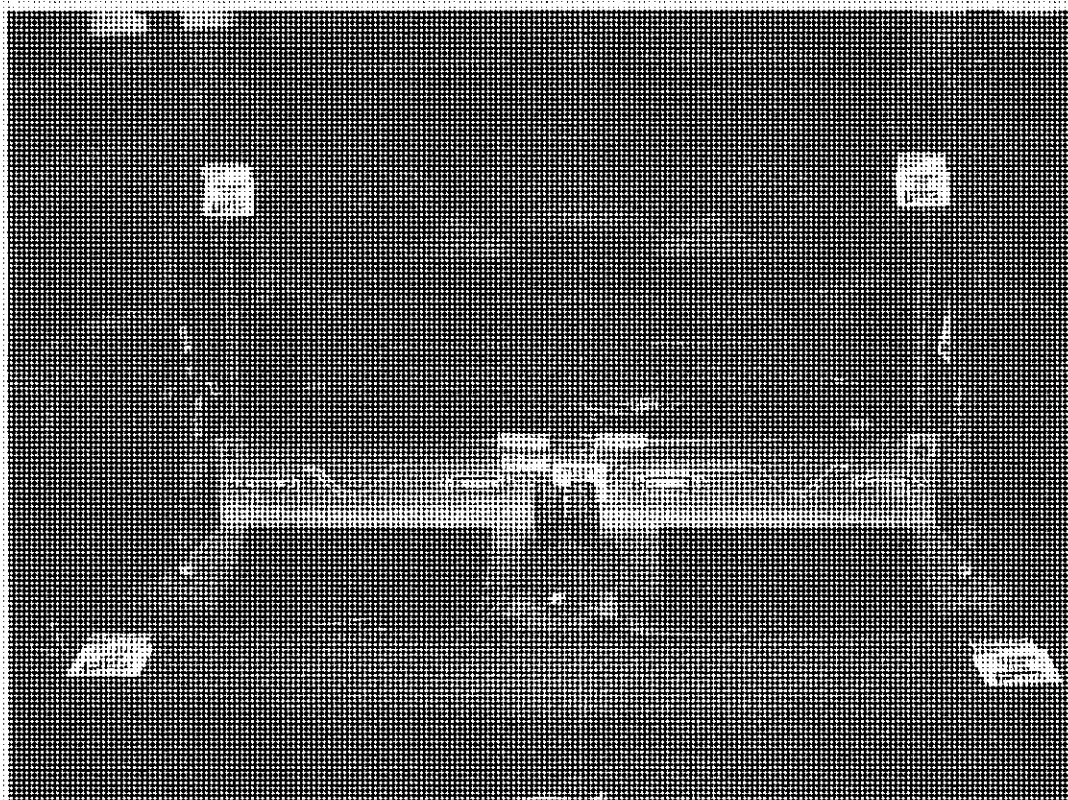


Figure A-125: Floor Plan Anchor, Rear Seat, Right Seat Back Overall, Post-Test

A-126

207 10/15/04 001

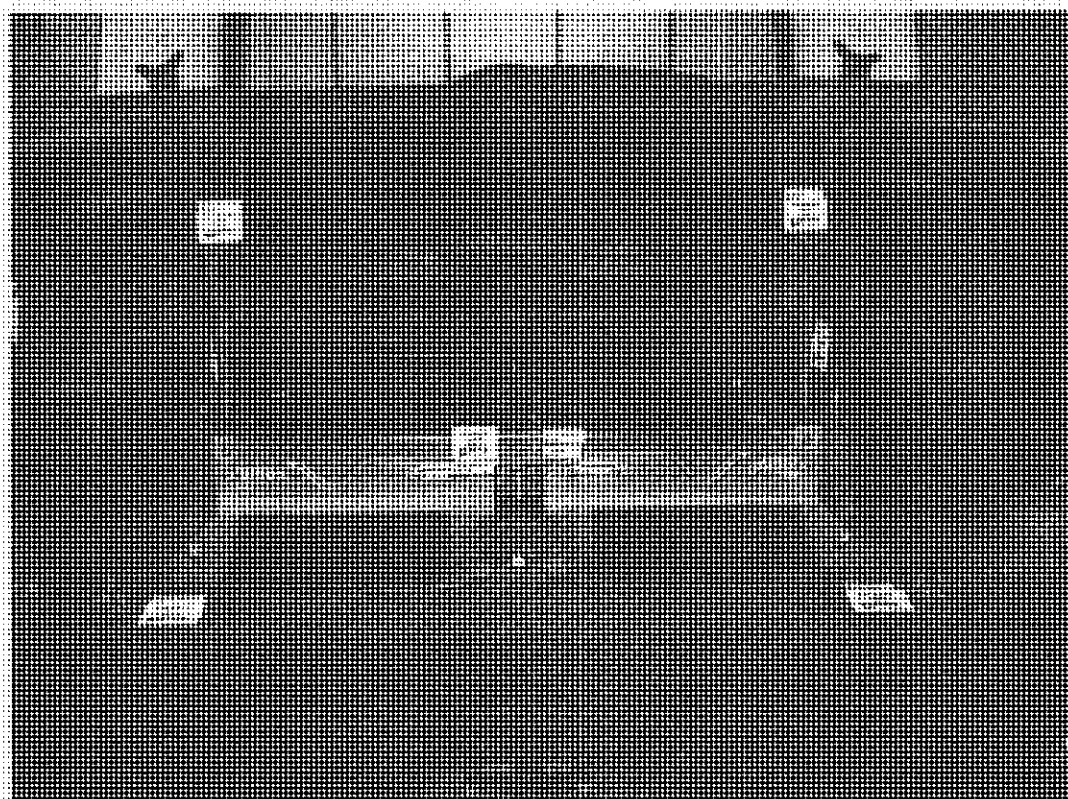


Figure A-126: Floor Plan Anchor, Rear Seat, Left Seat Back Overall, Post-Test

A-127

2014-05-21 14:51

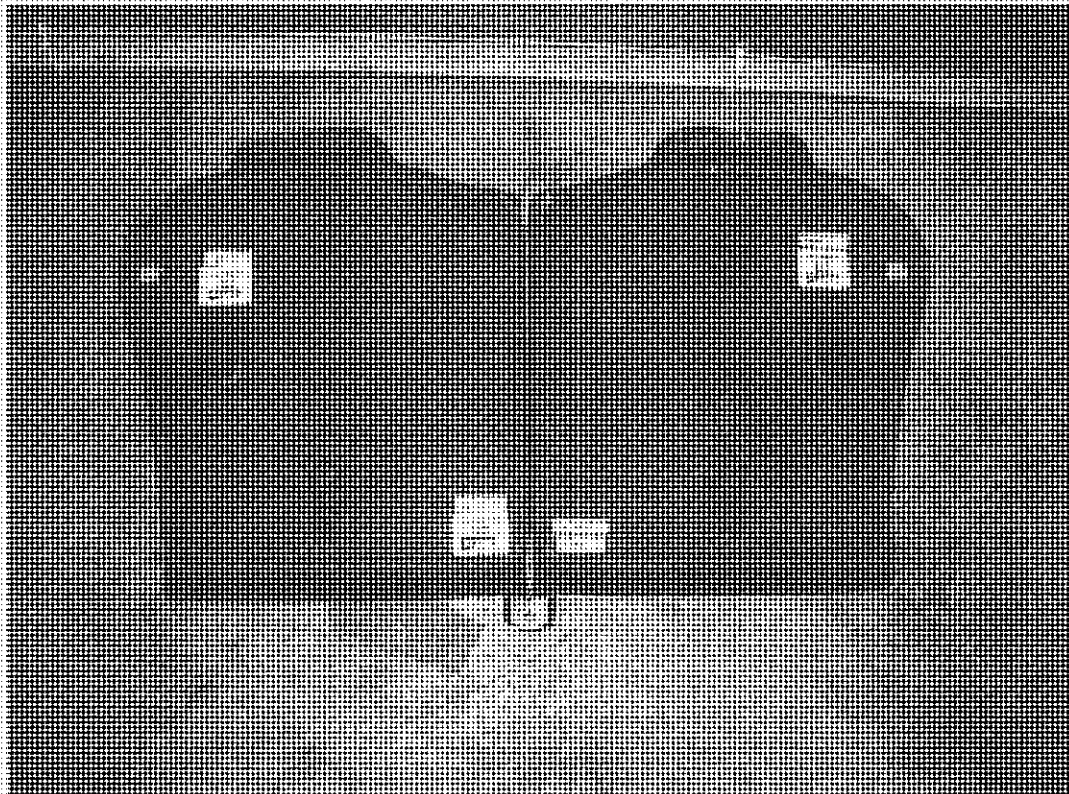


Figure A-127: Seat Anchor, Rear Seat, Right Seat Back Overall, Pre-Test

A-128

2014-05-21 14:51

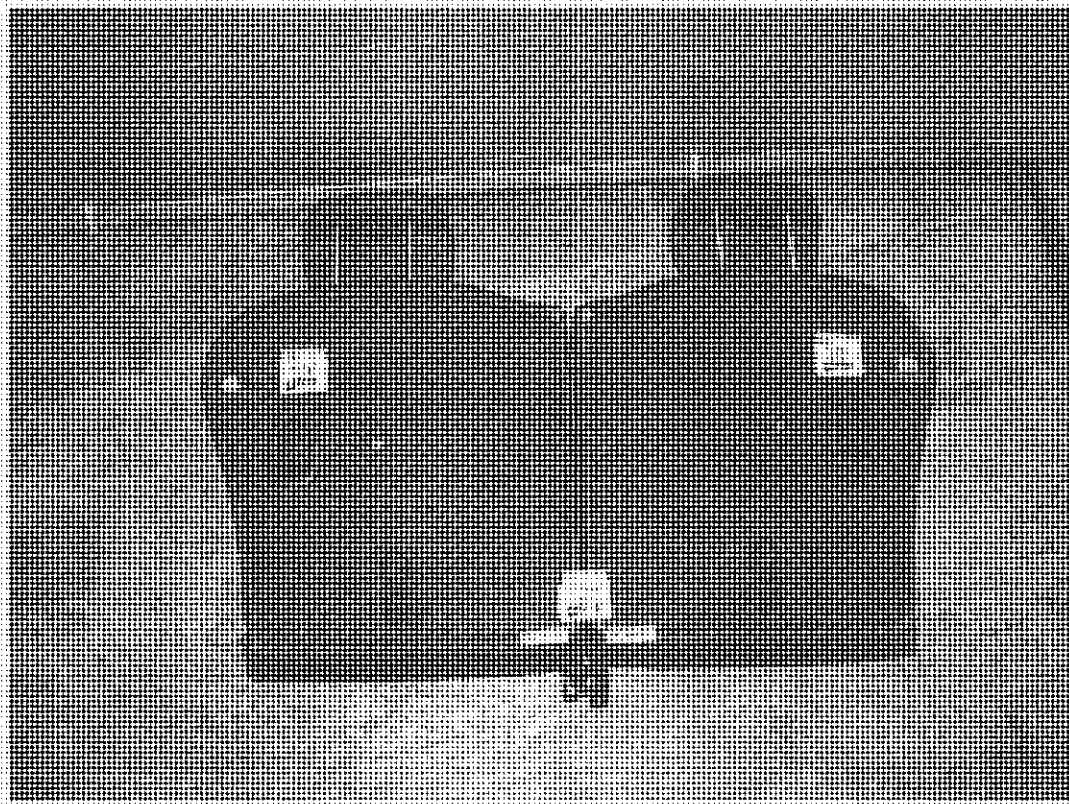


Figure A-128: Floor Plan Anchor, Rear Seat, Right Seat Back Overall, Post-Test

A-129

2010 JAN 14 07

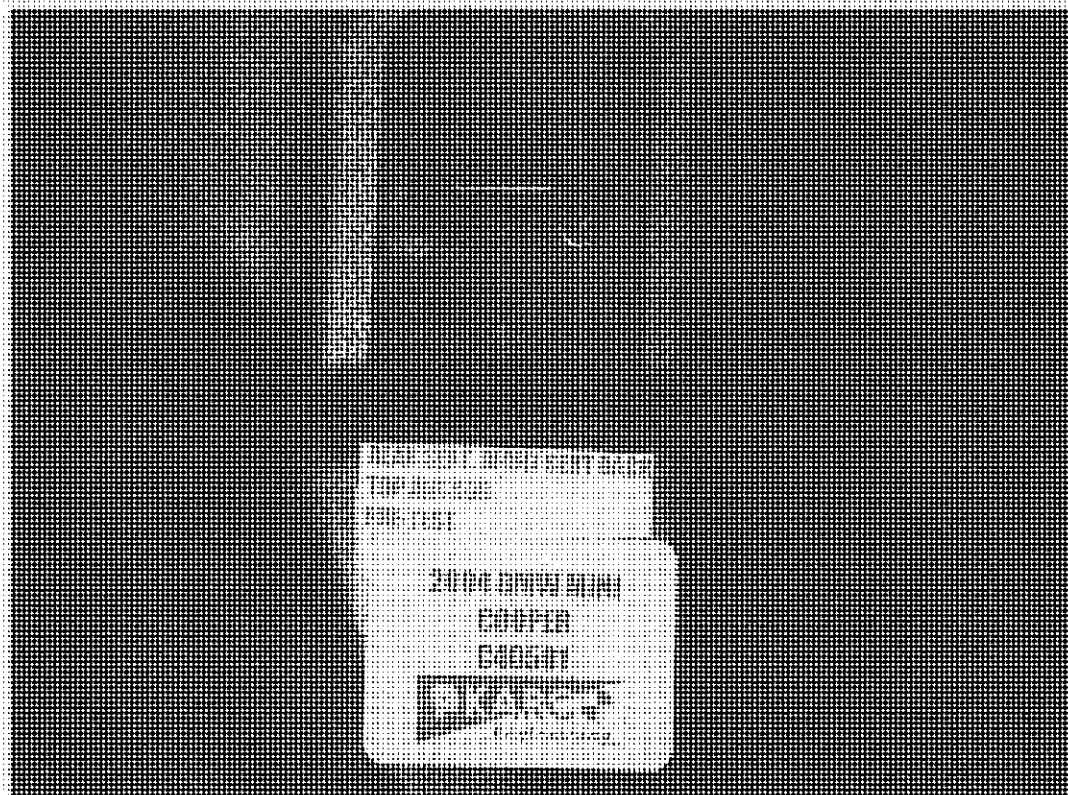


Figure A-129: Floor Pan Anchor, Rear Seat, Right Seat Back, Pre-Test

A-130

2010 JAN 14 07

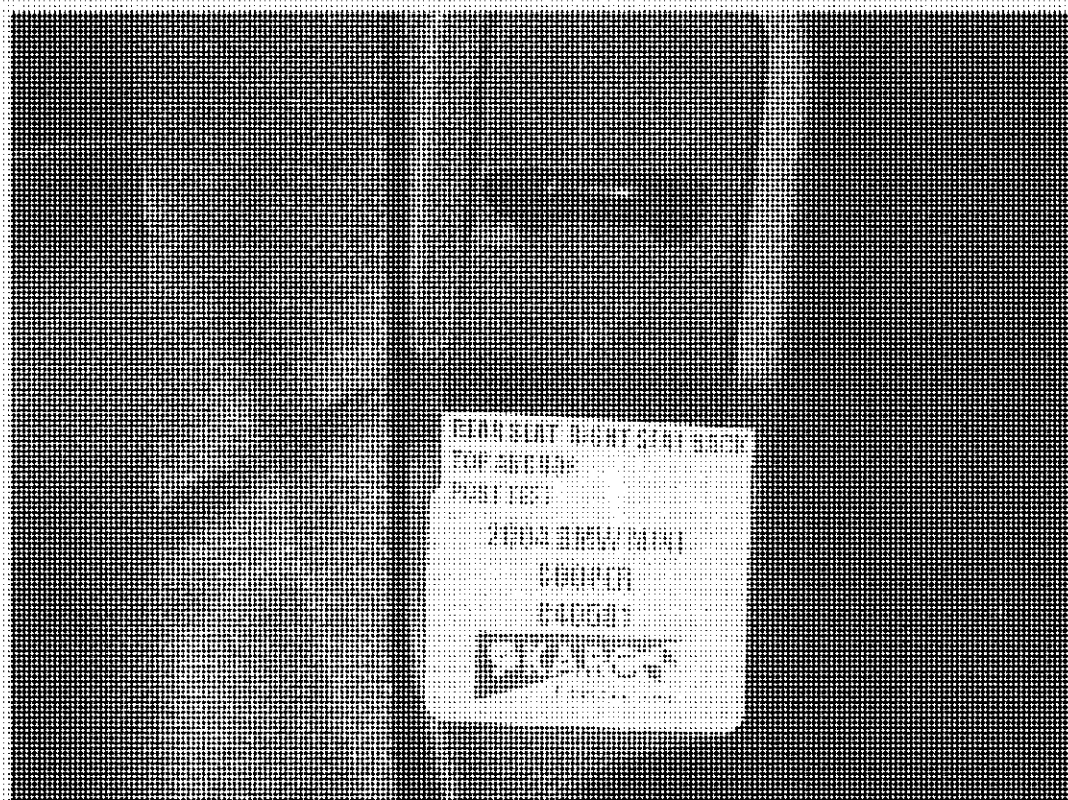


Figure A-130: Floor Pan Anchor, Rear Seat, Right Seat Back, Post-Test

A-131

2007-K454-001

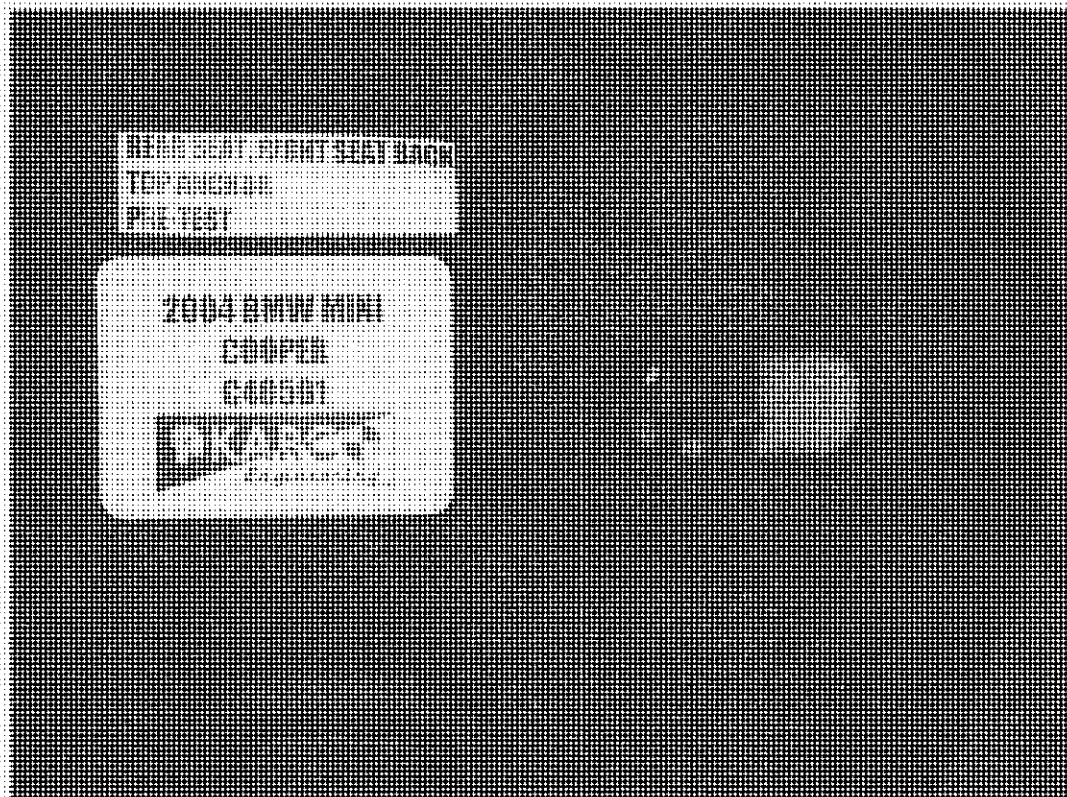


Figure A-131: Seat Anchor, Rear Seat, Right Seat Back, Pre-Test

A-132

2007-K454-001

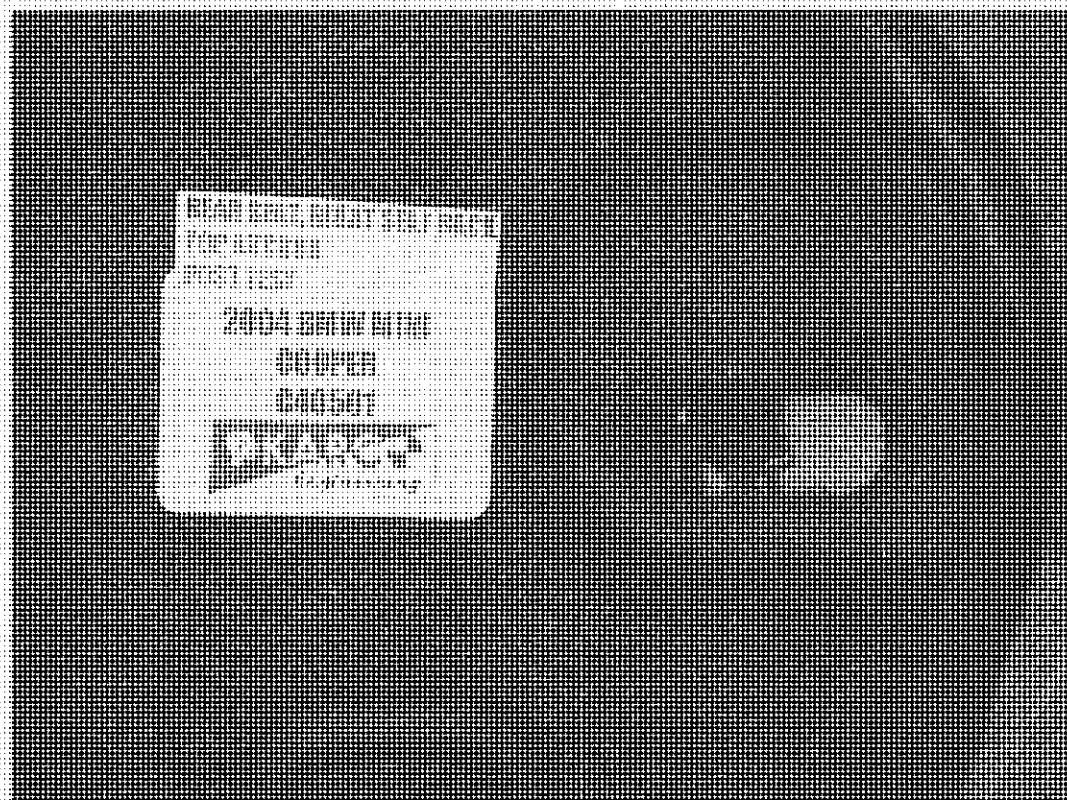


Figure A-132: Seat Anchor, Rear Seat, Right Seat Back, Post-Test

A-133

2004-2005-2006

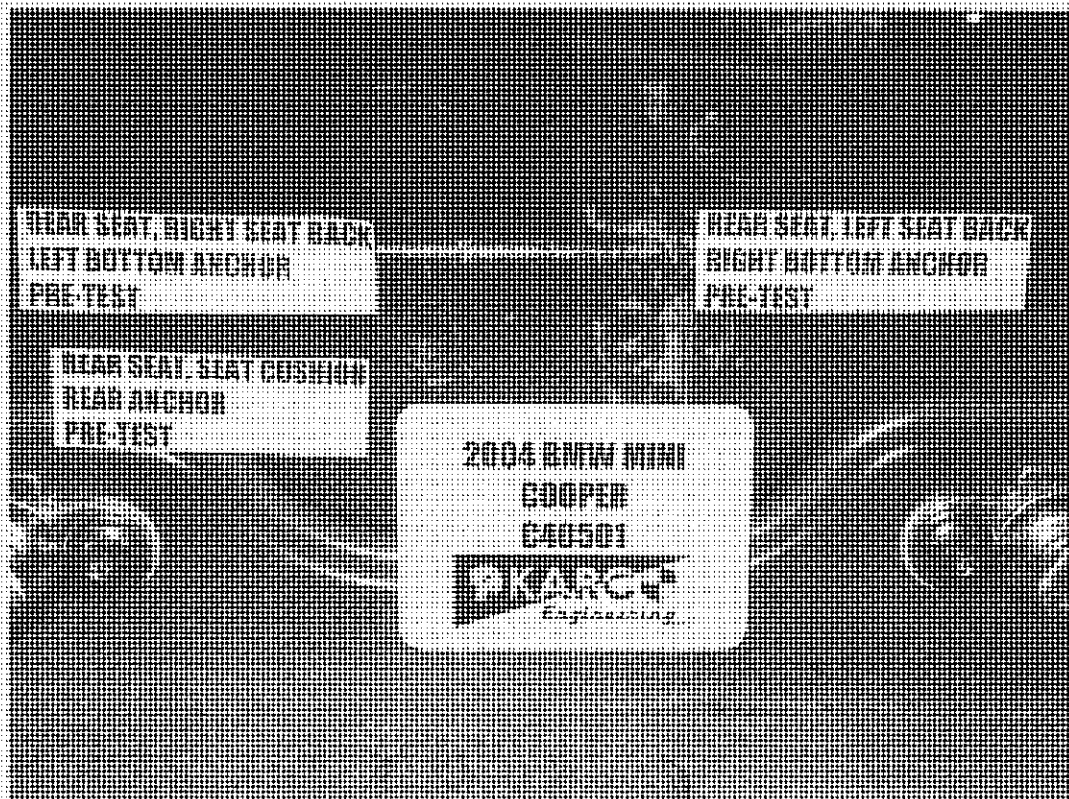


Figure A-133. Floor Pan Anchor, Rear Seat, Right Seat Back, Pre-Test

A-134

2007-2008-2009

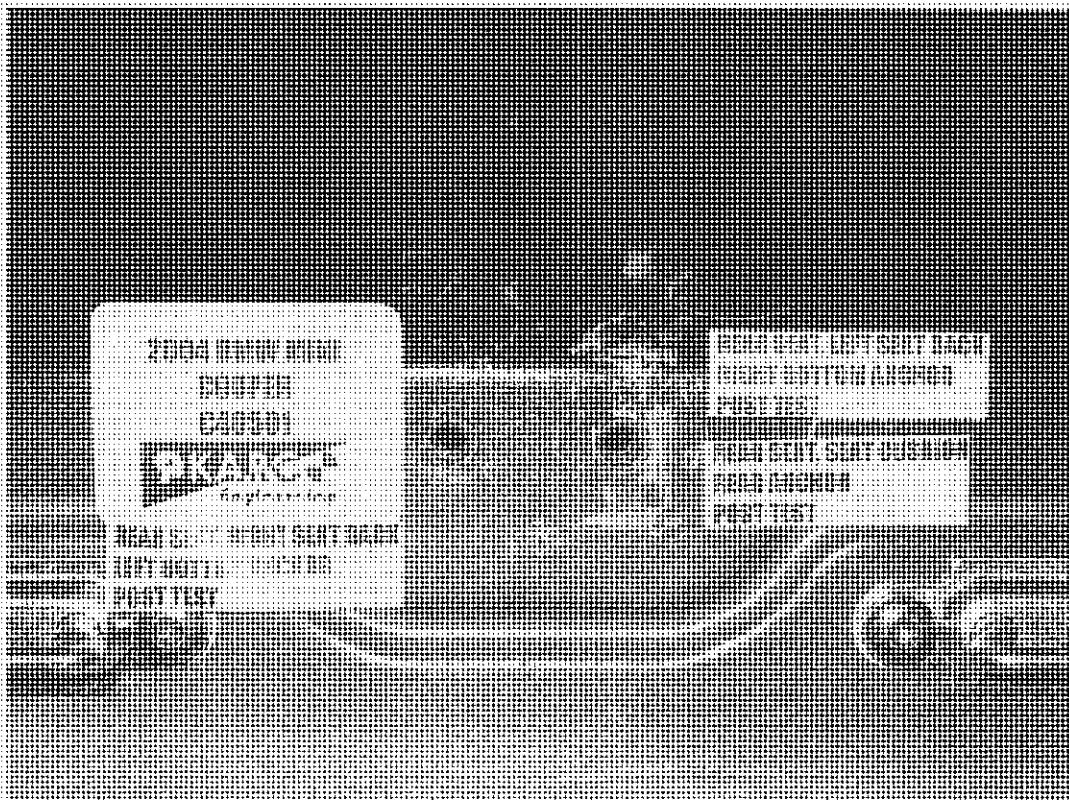


Figure A-134. Floor Pan Anchor, Rear Seat, Right Seat Back, Post-Test

A-135

2017-12-14 14:41

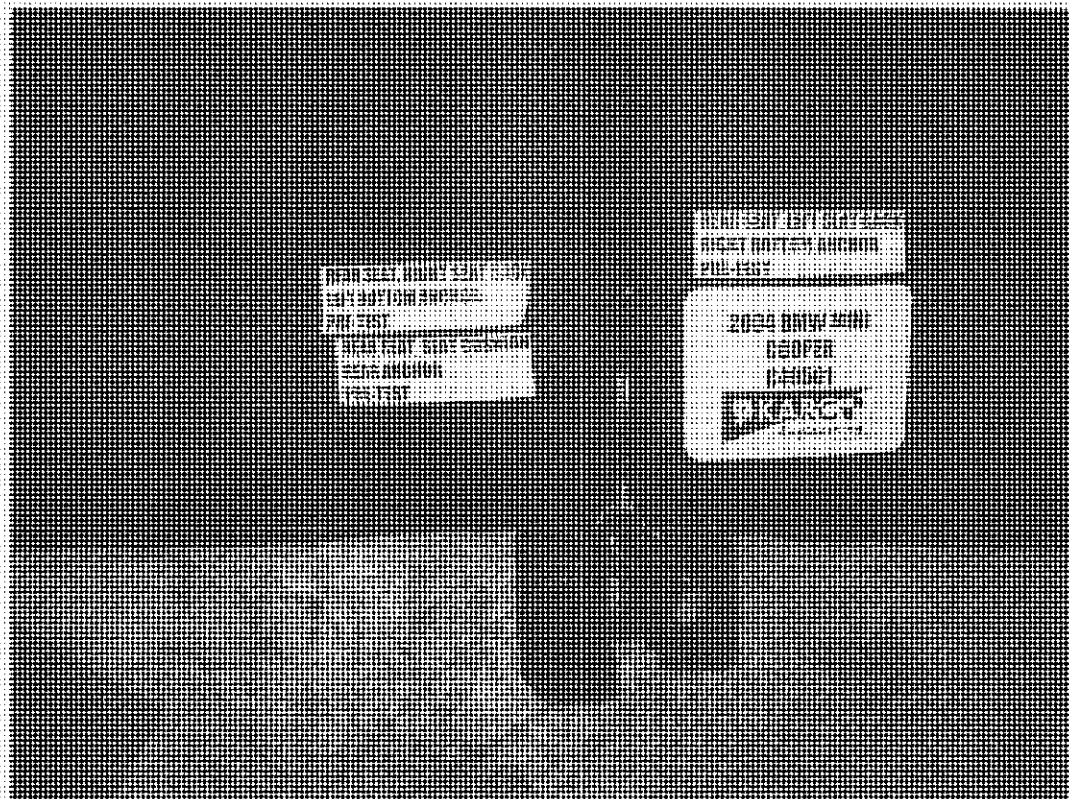


Figure A-135: Seat Anchor, Front Seat, Right Seat Back, Pre-Test

A-136

2017-12-14 14:41

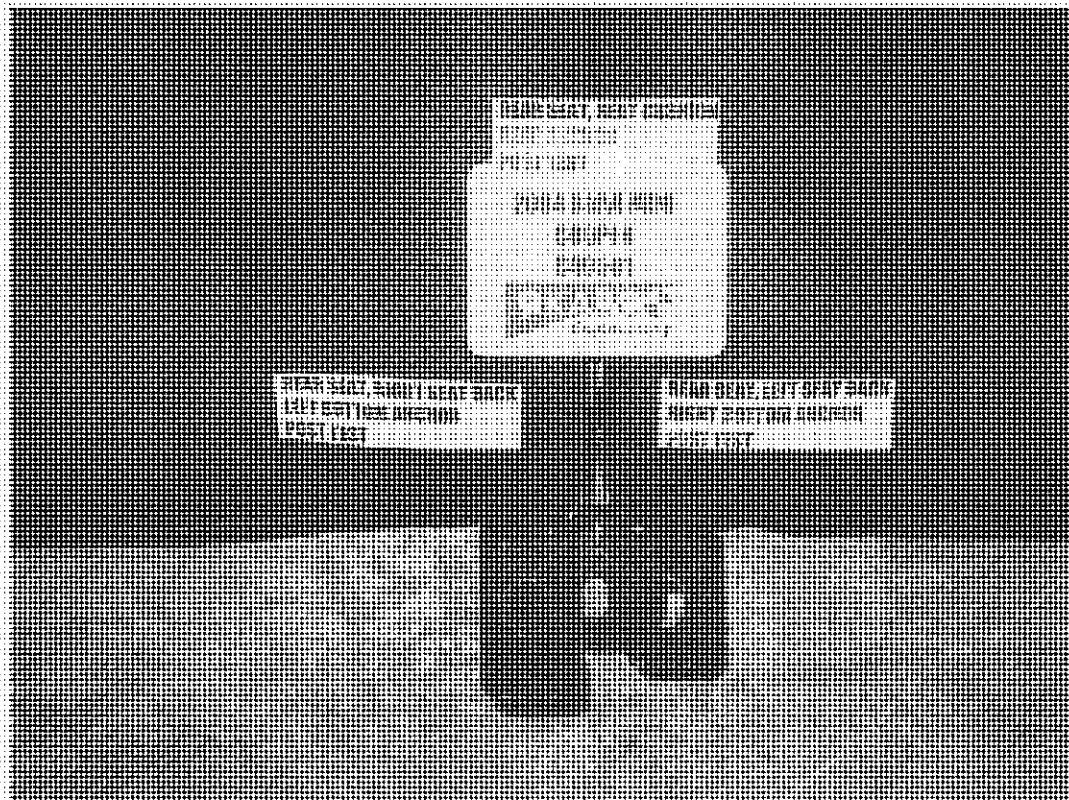


Figure A-136: Seat Anchor, Front Seat, Right Seat Back, Post-Test

5-13

2004 BMW MINI
COOPER
C40501

2-14

2004 BMW MINI
COOPER
C40501



Figure A-124: Floor Pan Anchor, Rear Seat, Right Seat Back, Pre-Test



Figure A-125: Floor Pan Anchor, Rear Seat, Right Seat Back, Post-Test

A-139

207 K23 04-001

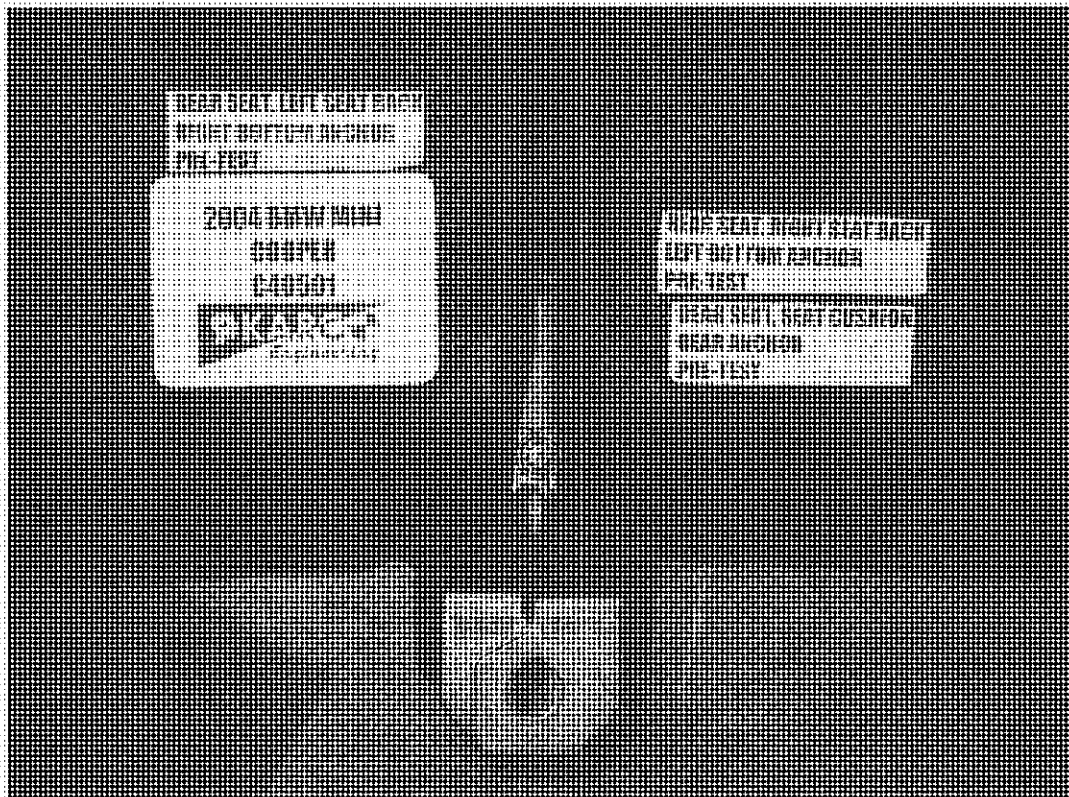


Figure A-139: Seat Anchor, Rear Seat, Right Seat Back, Pre-Test

A-140

207 K23 04-001

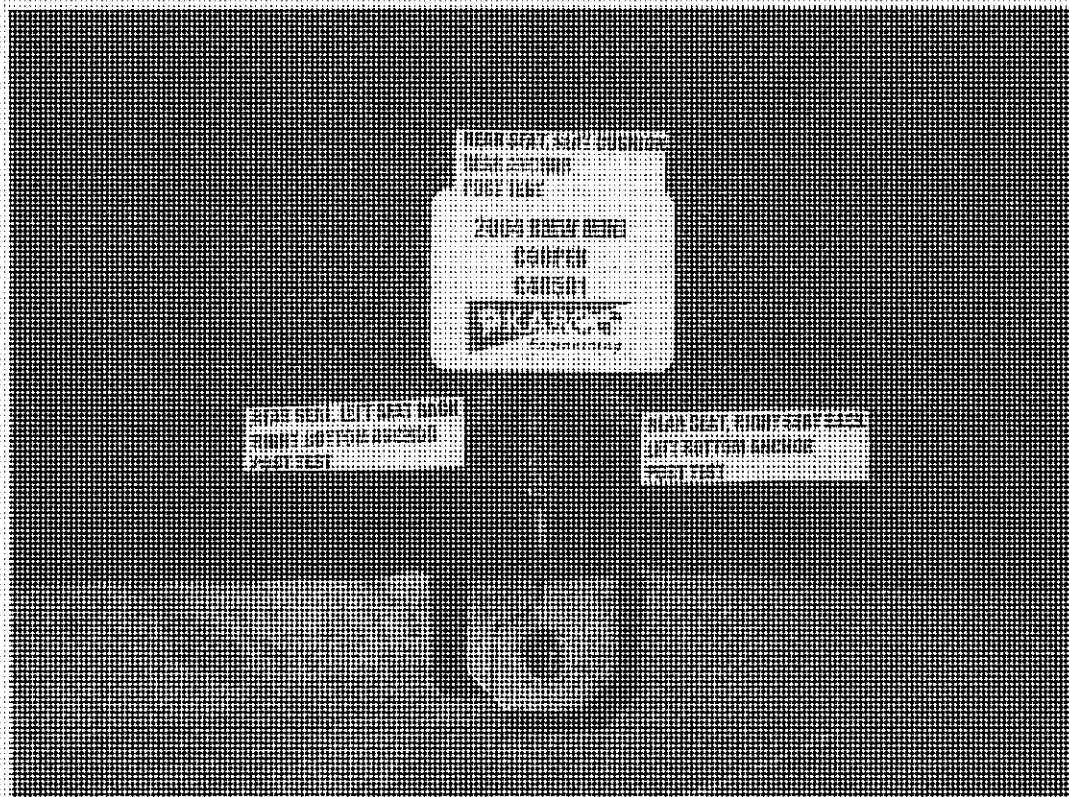


Figure A-140: Seat Anchor, Rear Seat, Left Seat Back, Post-Test

A-141

207 KAR 04-051

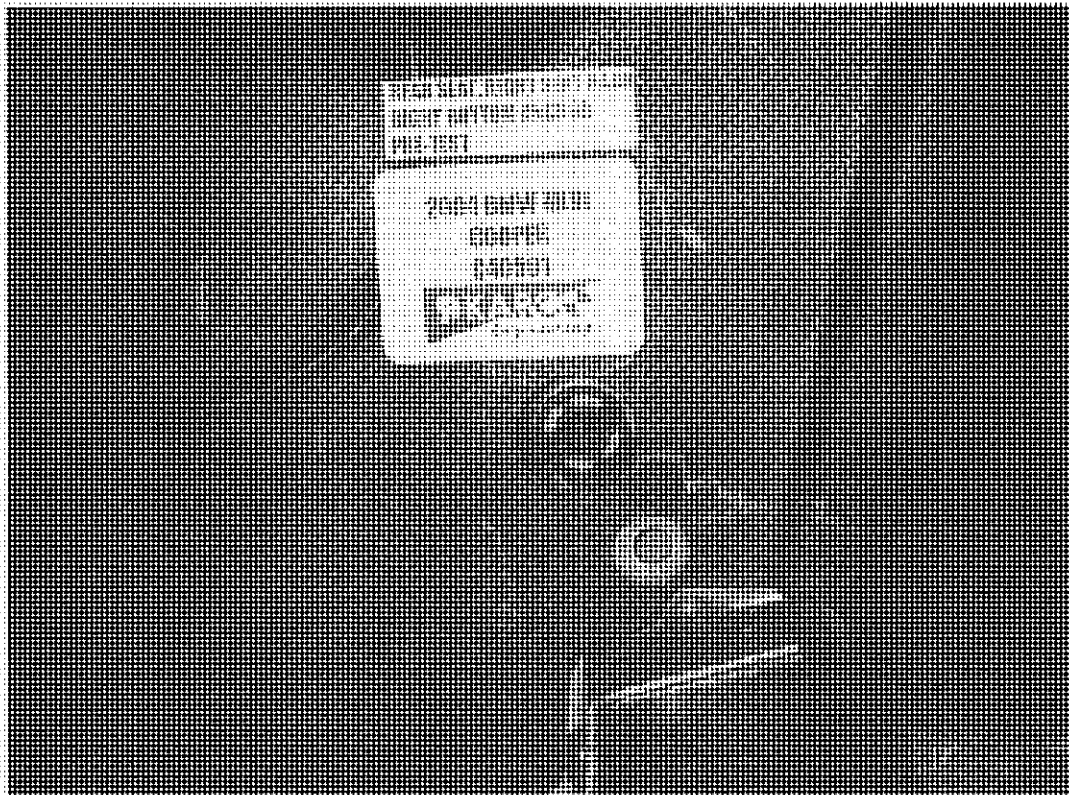


Figure A-141: Floor Plan Anchor, Rear Seat, Right Seat Back, Post-Test

A-142

207 KAR 04-051

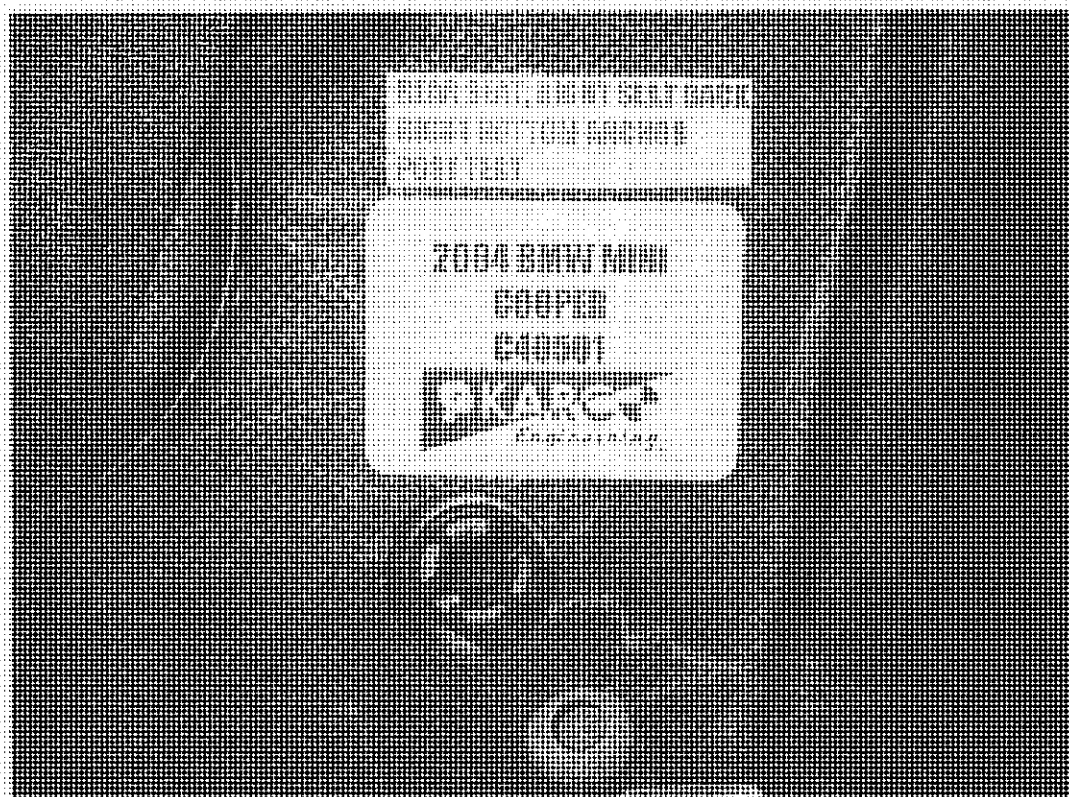


Figure A-142: Floor Plan Anchor, Rear Seat, Right Seat Back, Post-Test

7-143

201-208-54-001

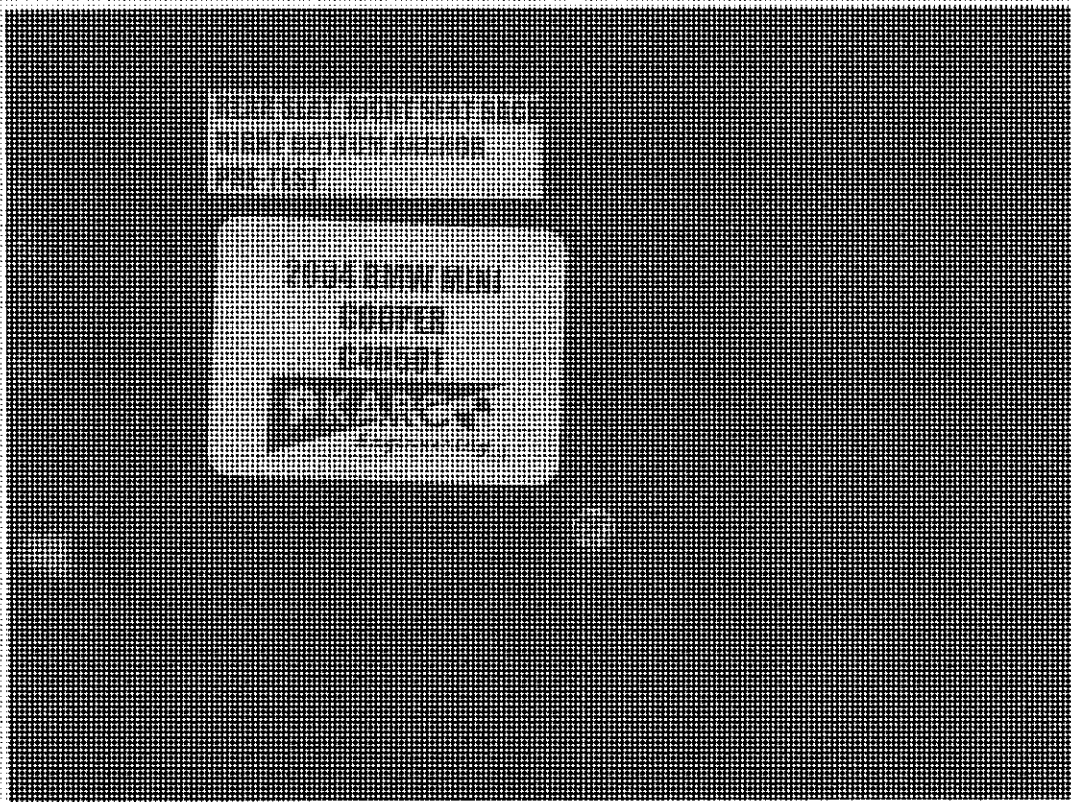


Figure A-143: Seat Anchor, Rear Seat, Right Seat Back, Pre-Test

7-144

201-208-54-001

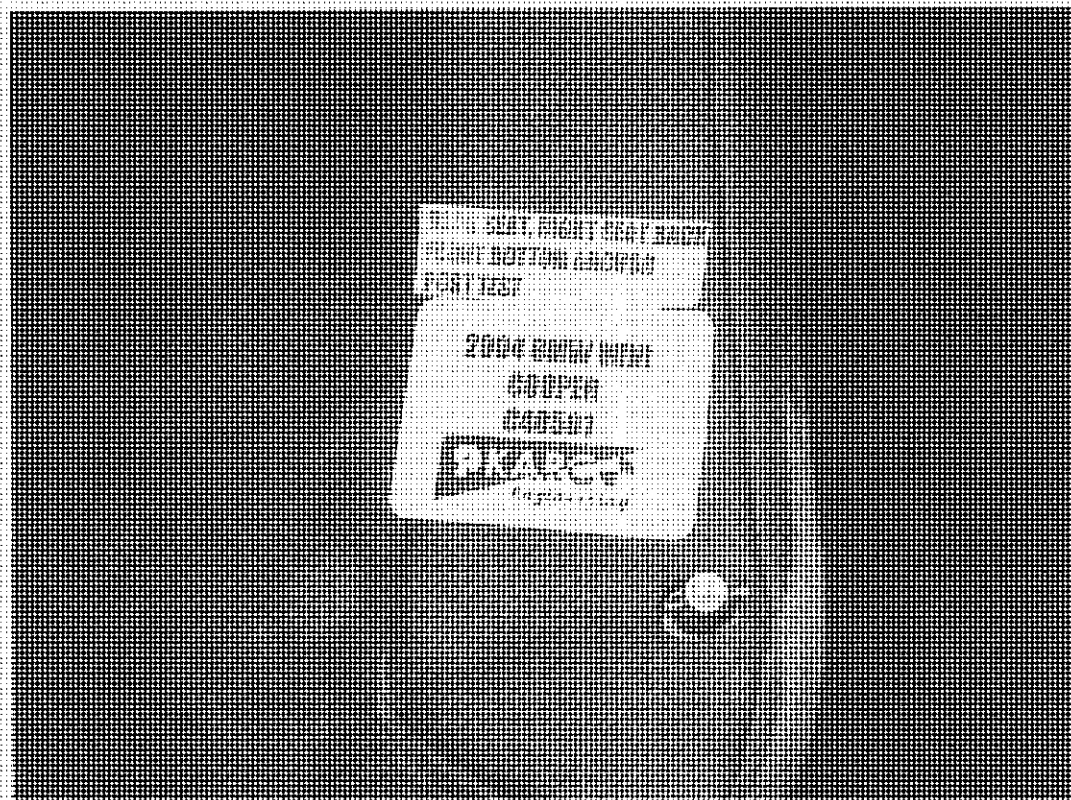
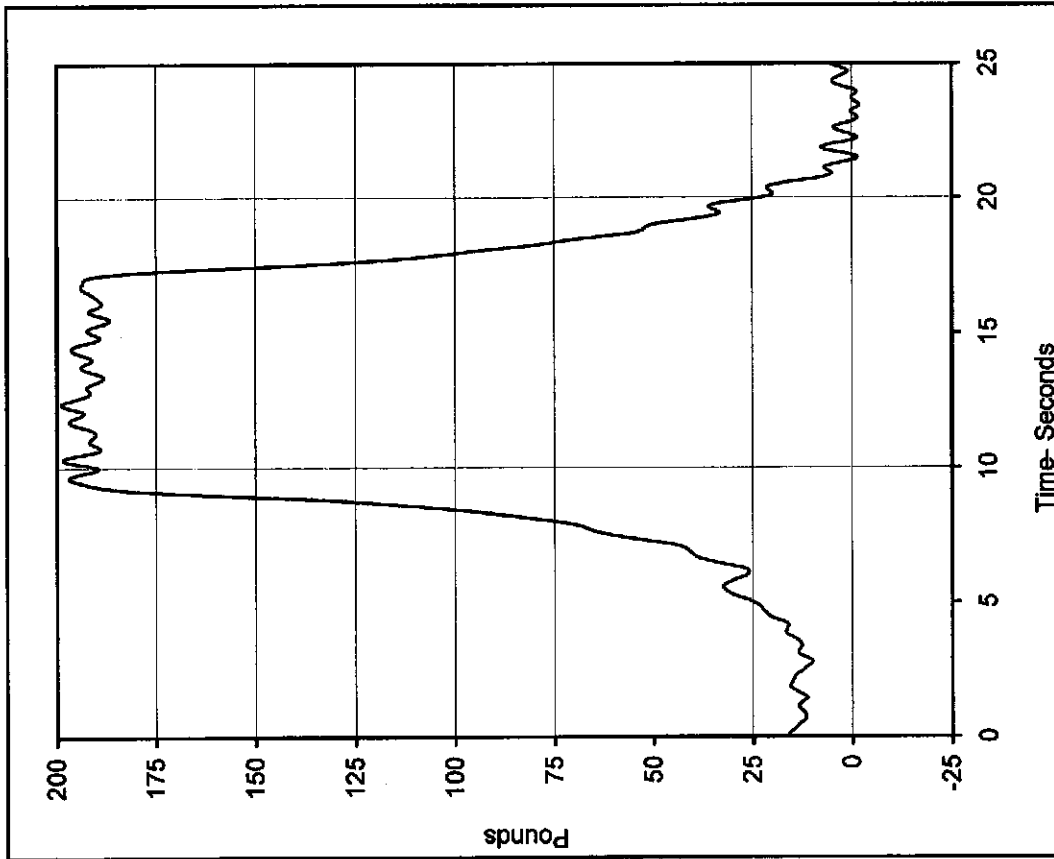


Figure A-144: Seat Anchor, Rear Seat, Right Seat Back, Post-Test

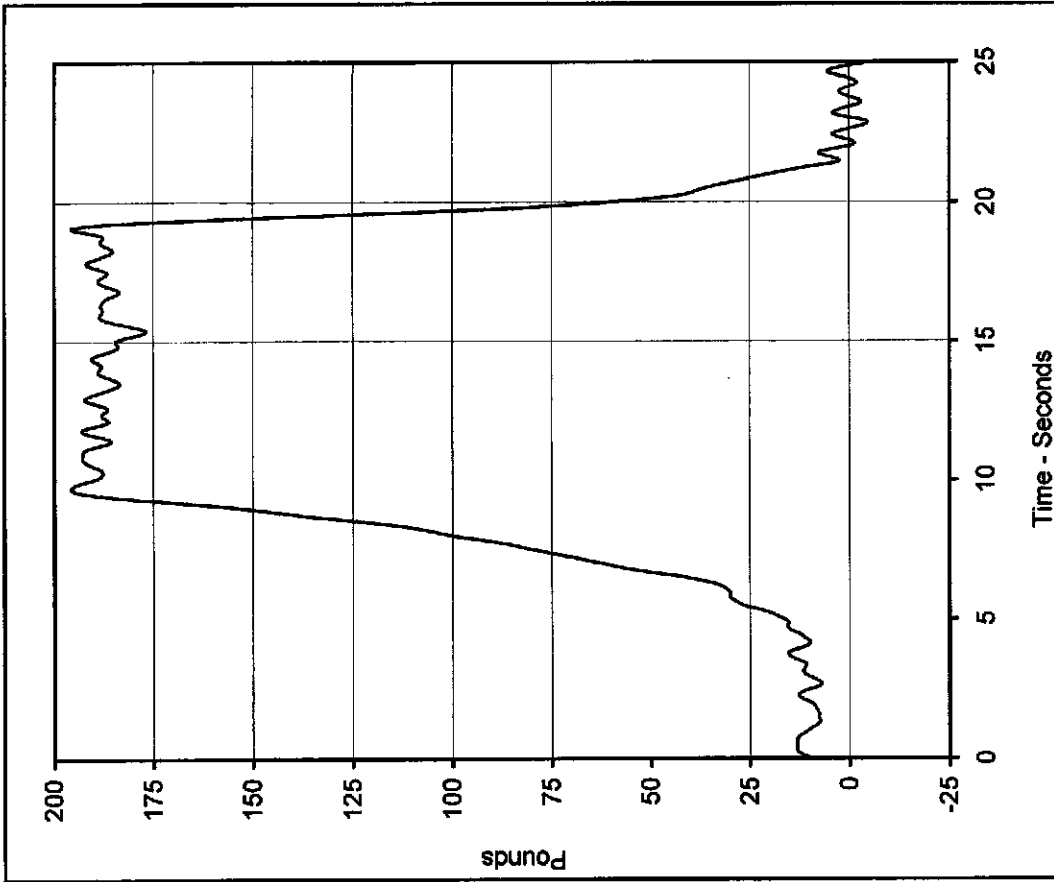
APPENDIX B
DATA PLOTS



Curve Description		CURNO	Type
Driver Aft Moment Load		001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	198.9	12.4	-1.9	23.5	1

Test Program: FMVSS 207 Aft Moment (Front)
 Test Vehicle: 2004 Mini Cooper 2-Door Coupe

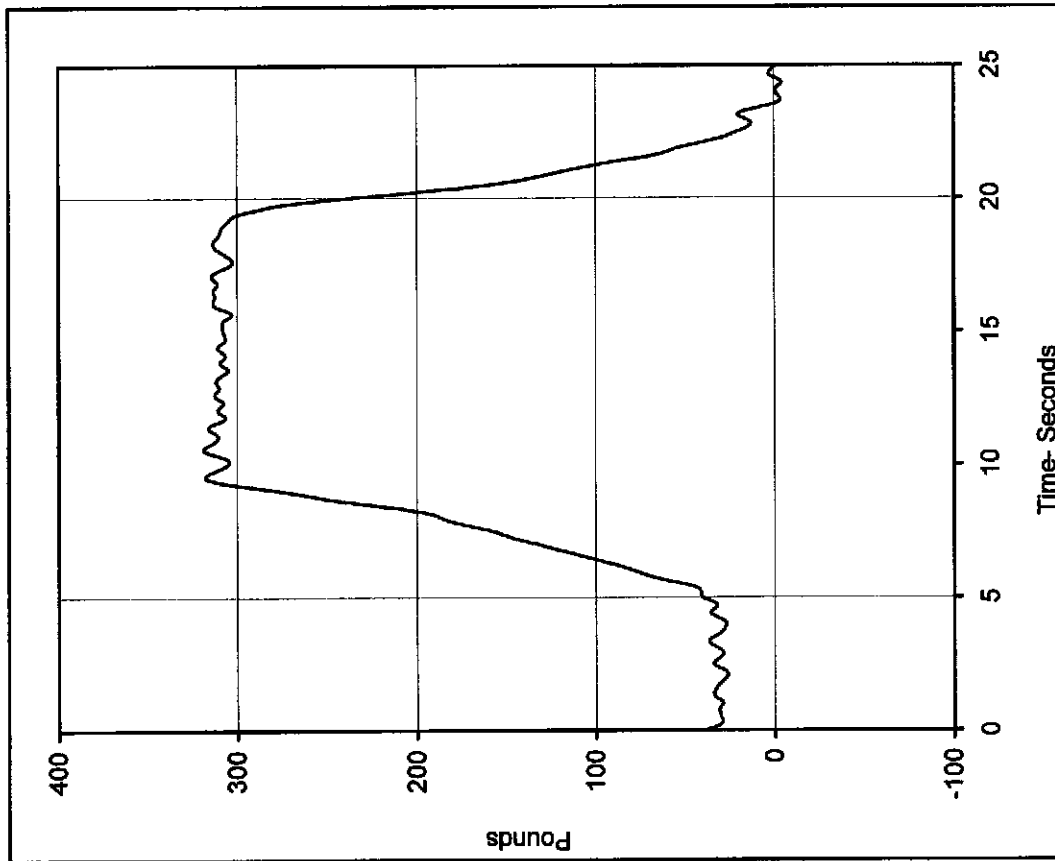


Curve Description		CURNO	Type
Pass. Aft Moment Load		002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	195.7	9.7	-4.6	22.9	1

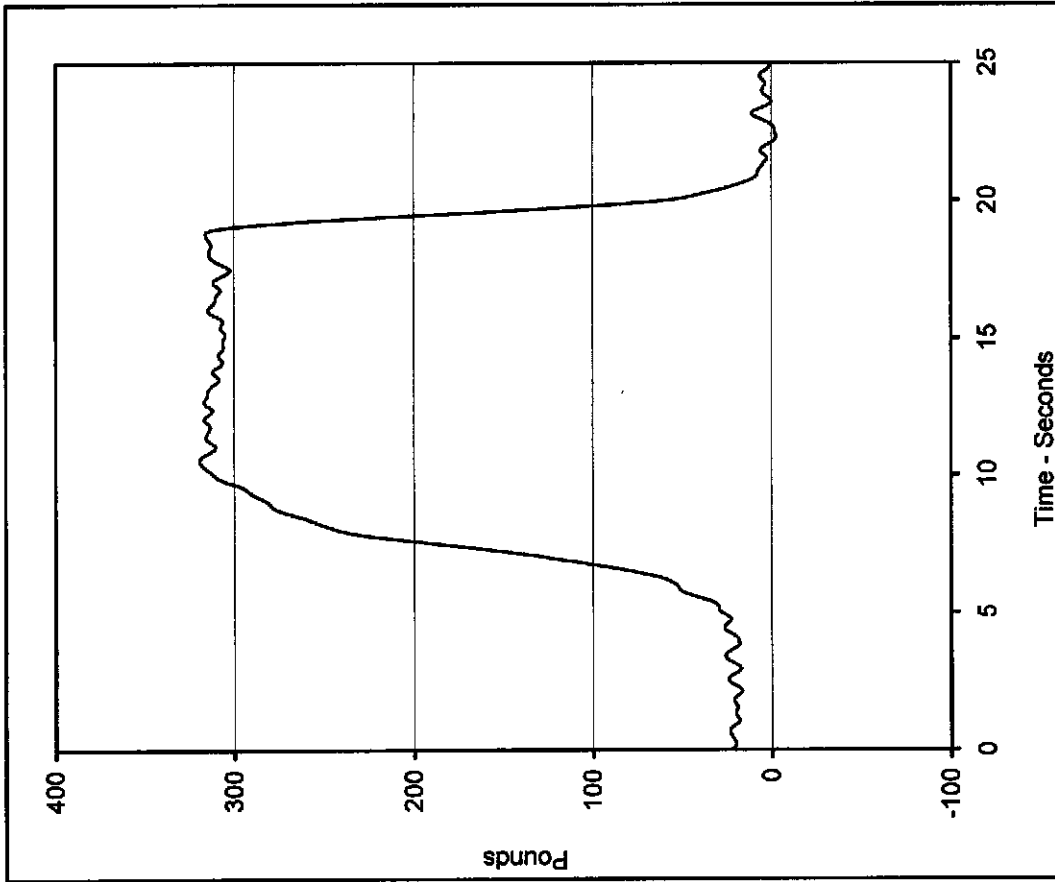
Test Date: 8/23/04
 Project No.: C40501





Curve Description		CURNO		Type	
Driver Seat		001		FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	319.0	10.6	-4.1	24.4	1



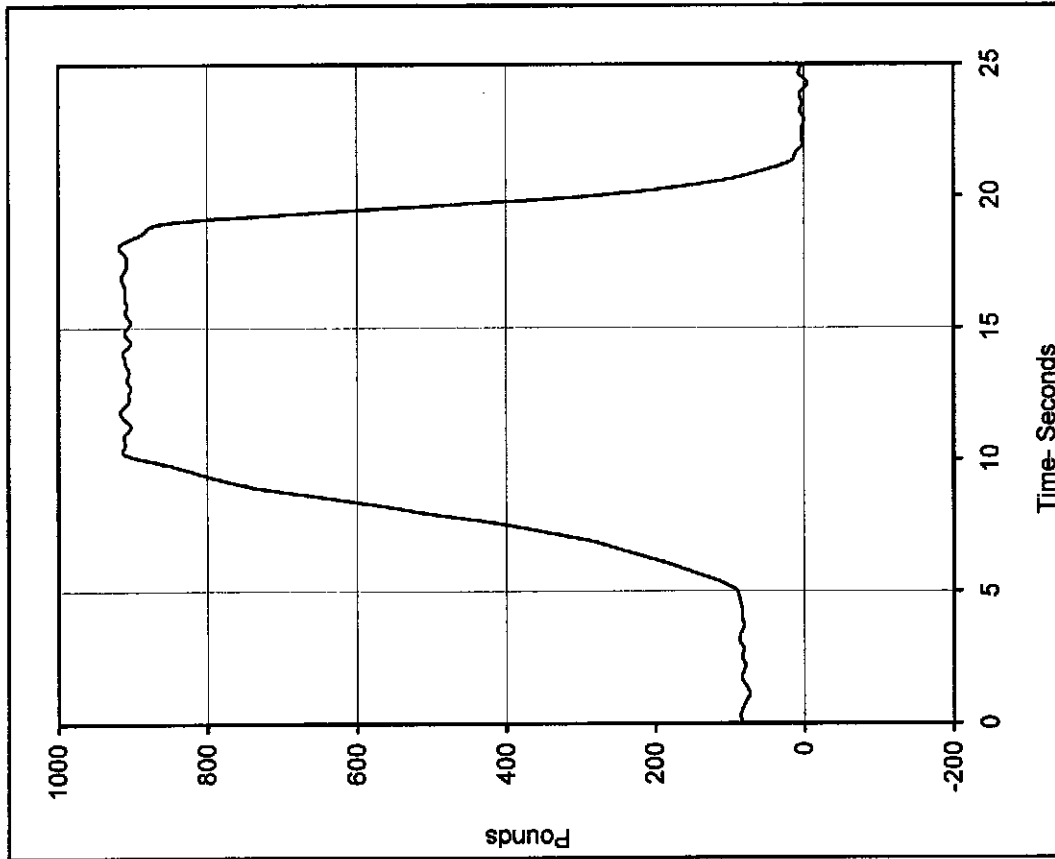
Curve Description		CURNO		Type	
Pass. Seat		002		FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	319.3	10.6	-2.6	22.3	1



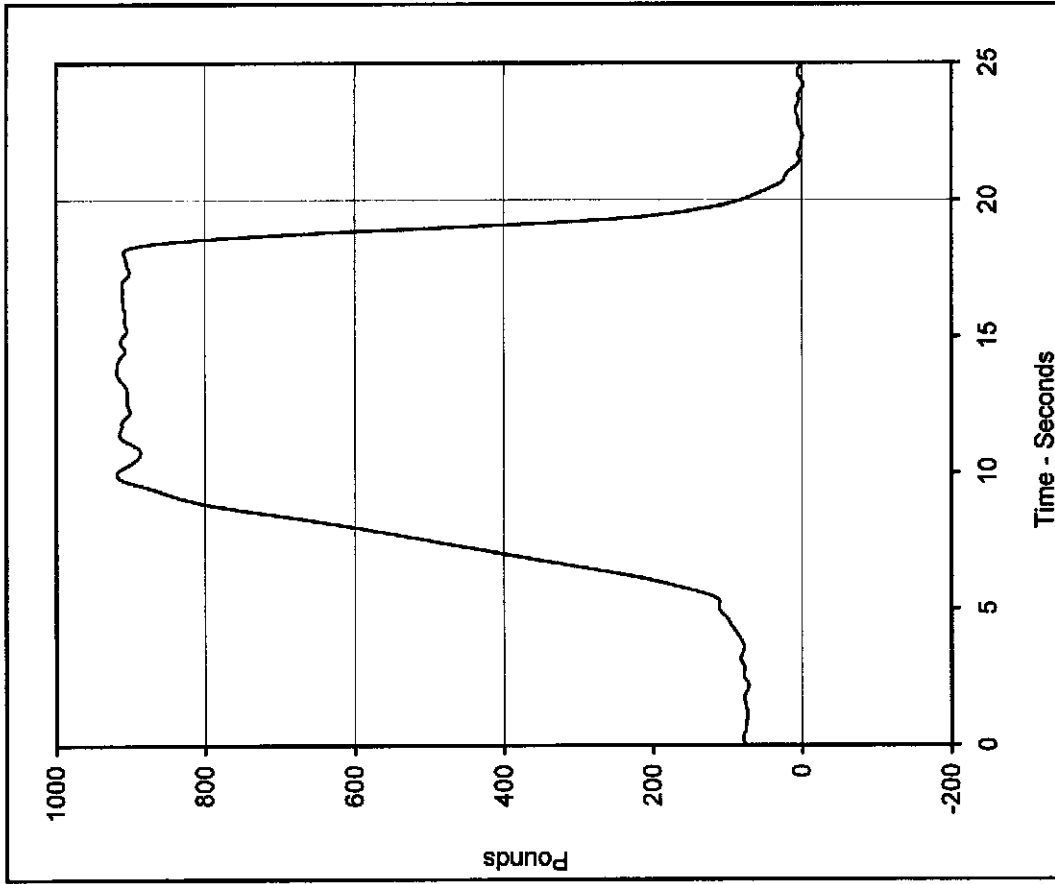
Test Date: 8/23/04
Project No.: C40501

Test Program: FMVSS 207 Fwd. Seat Frame and Adj. (No Strut)
Test Vehicle: 2004 Mini Cooper 2-Door Coupe



Curve Description	CURNO	Type
Driver Seat	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	918.7	18.1	-4.6	24.3	1



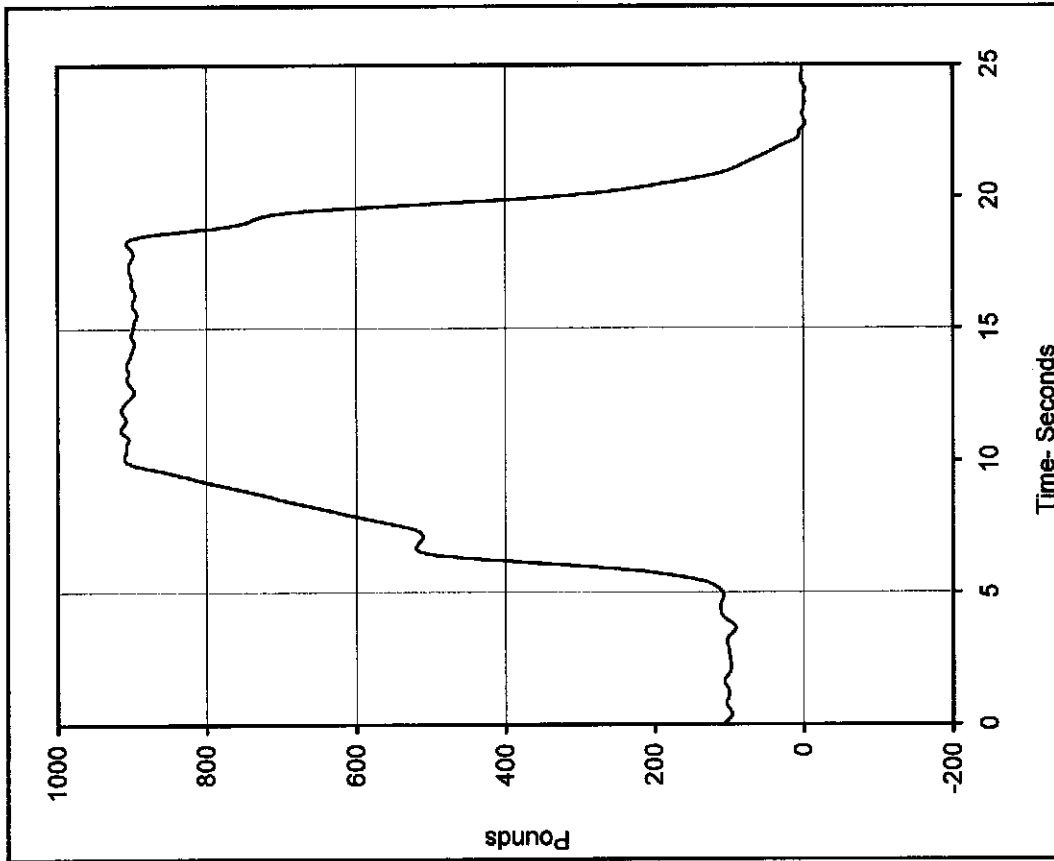
Curve Description	CURNO	Type
Pass. Seat	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	919.0	13.7	-1.8	24.3	1



Test Date: 8/24/04
Project No.: C40501

Test Program: FMVSS 207 Fwd. Seat Frame and Adj. (Strut)
Test Vehicle: 2004 Mini Cooper 2-Door Coupe



Curve Description		CURNO		Type	
Driver Seat		001		FIL	

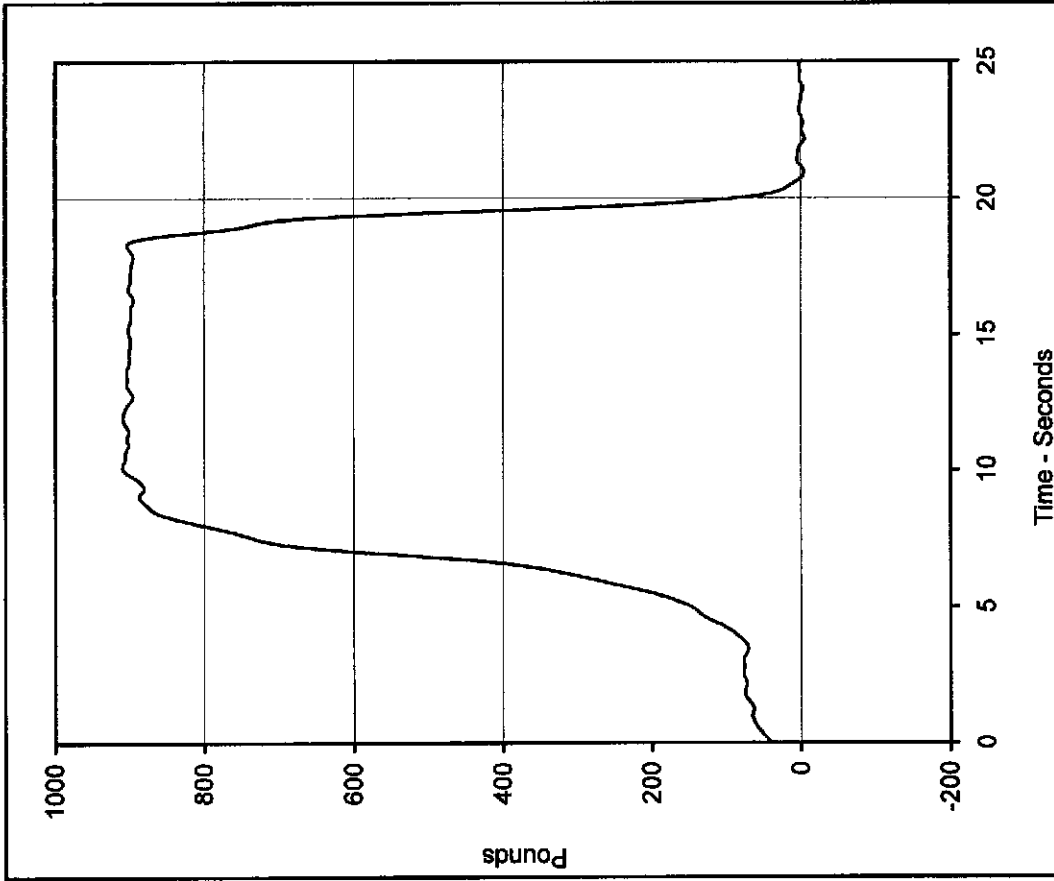
Units	Max	Time	Min	Time	Filter (Hz)
Pounds	915.2	11.2	-3.0	24.1	1

Test Program:

FMVSS 207 Air Seat Frame and Adj. (Strut)

Test Vehicle:

2004 Mini Cooper 2-Door Coupe



Curve Description		CURNO		Type	
Pass. Seat		002		FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	909.8	10.2	-5.1	22.2	1

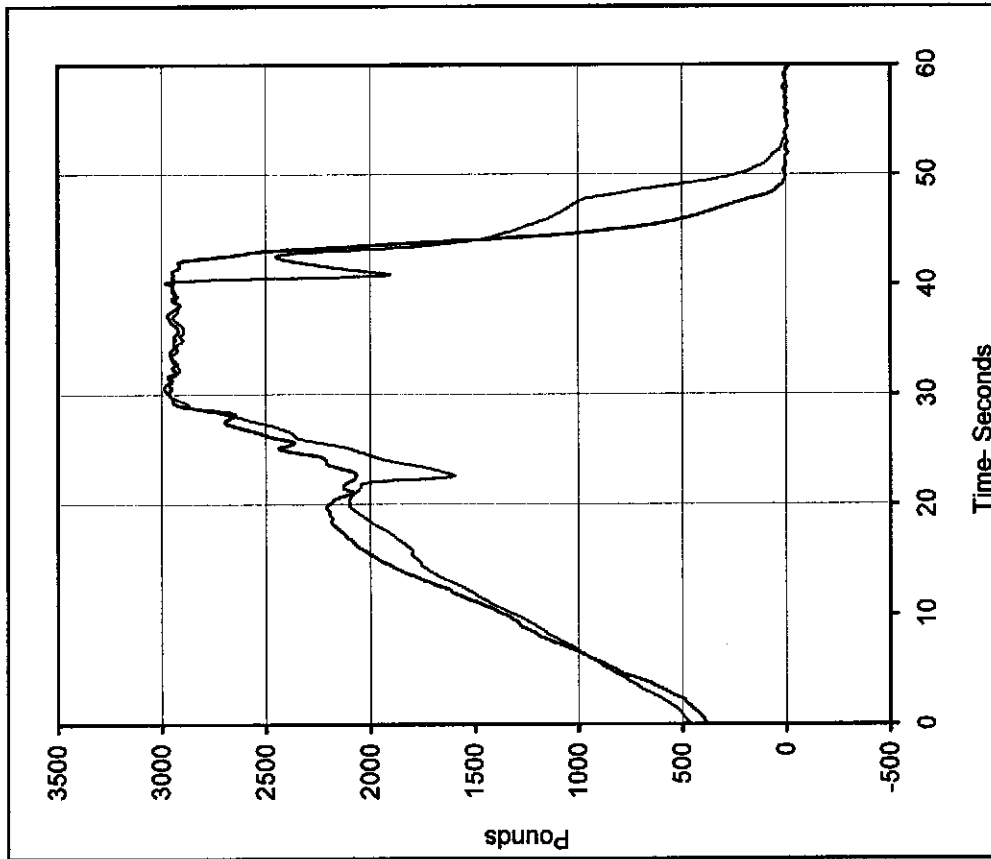
Test Date:

8/25/04

Project No.:

C40501

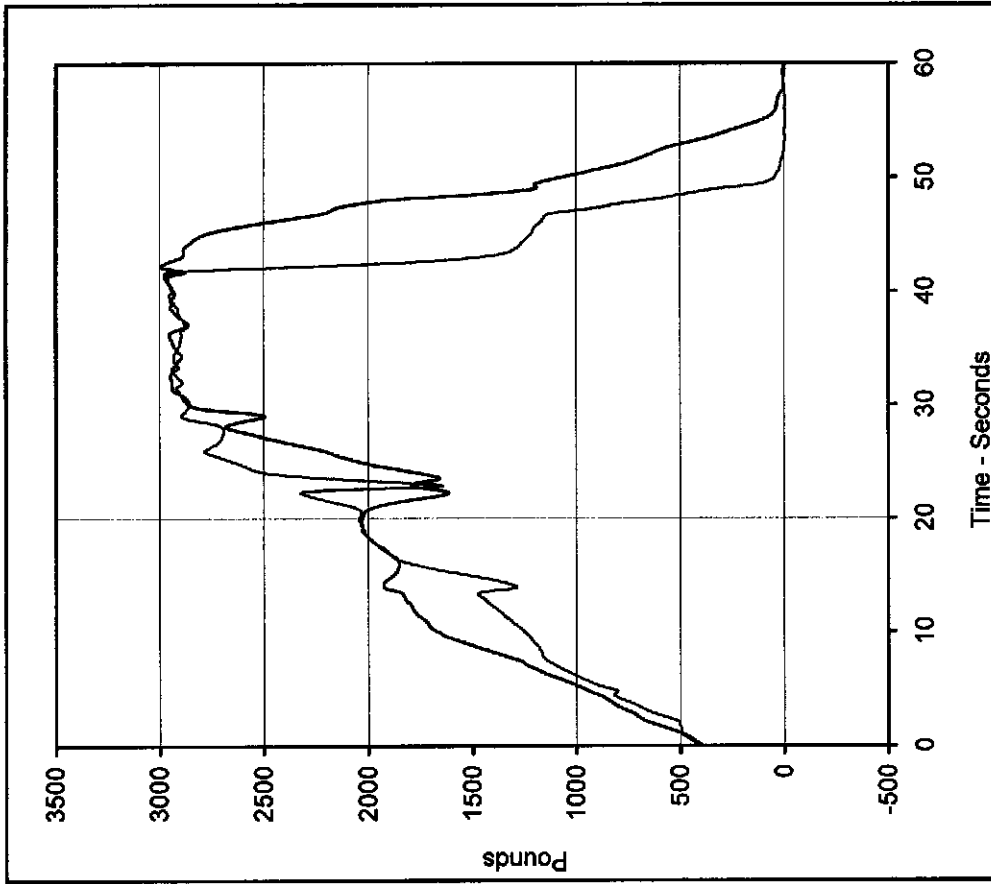




Curve Description	CURNO	Type
Driver Lap	001	FIL
Driver Shoulder	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2971.9	37.2	-15.2	60.0	1
Pounds	2986.5	30.6	-3.4	54.6	1

Test Program: FMVSS 207/210 Front Seats
 Test Vehicle: 2004 Mini Cooper 2-Door Coupe

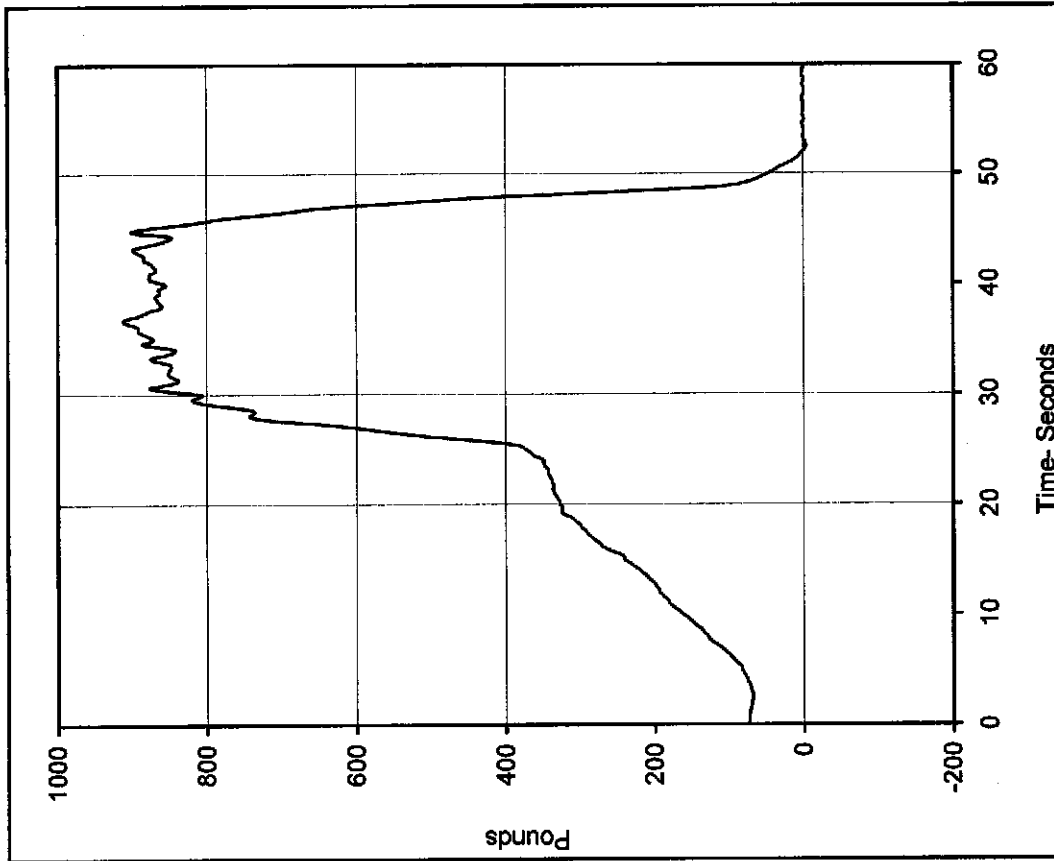


Curve Description	CURNO	Type
Passenger Lap	004	FIL
Passenger Shoulder	005	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2992.0	42.2	2.6	59.9	1
Pounds	2978.1	41.6	-6.0	54.6	1

Test Date: 8/27/04
 Project No.: C40501

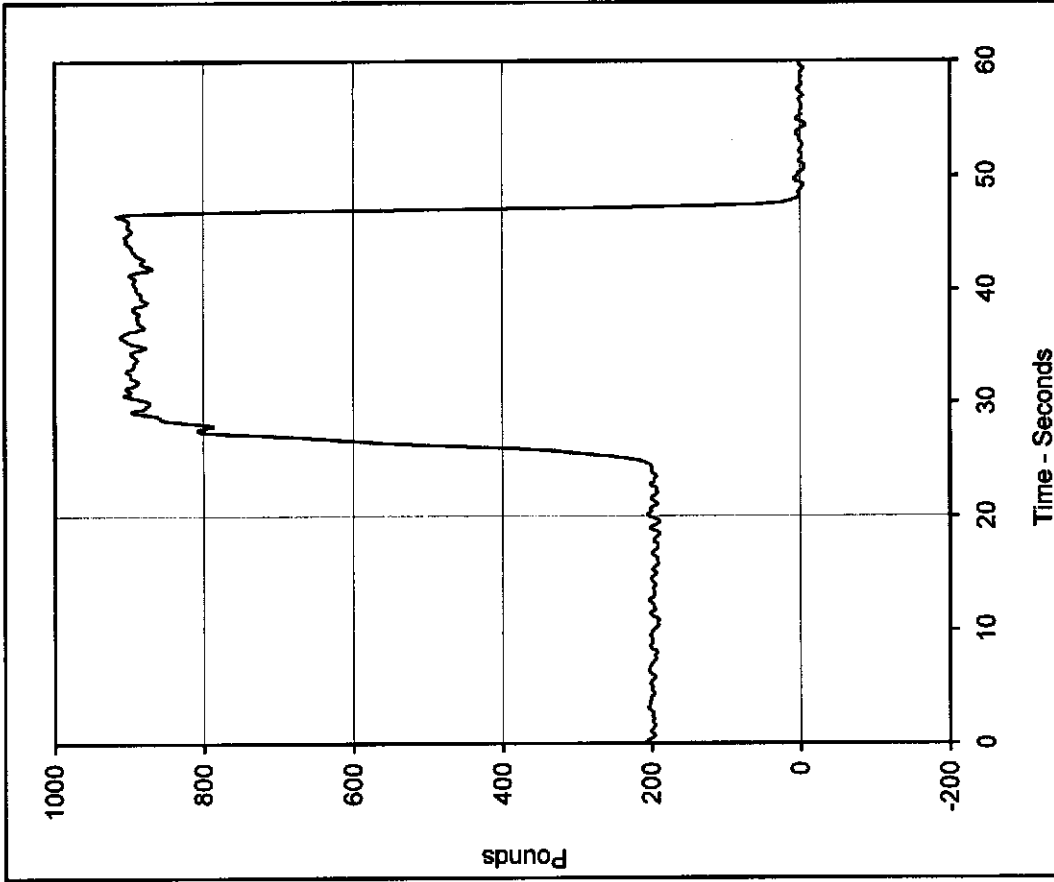




Curve Description	CURNO	Type
Driver Seat	003	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	911.9	36.7	-4.4	52.5	1

Test Program: FMVSS 207/210 Front Seats
 Test Vehicle: 2004 Mini Cooper 2-Door Coupe

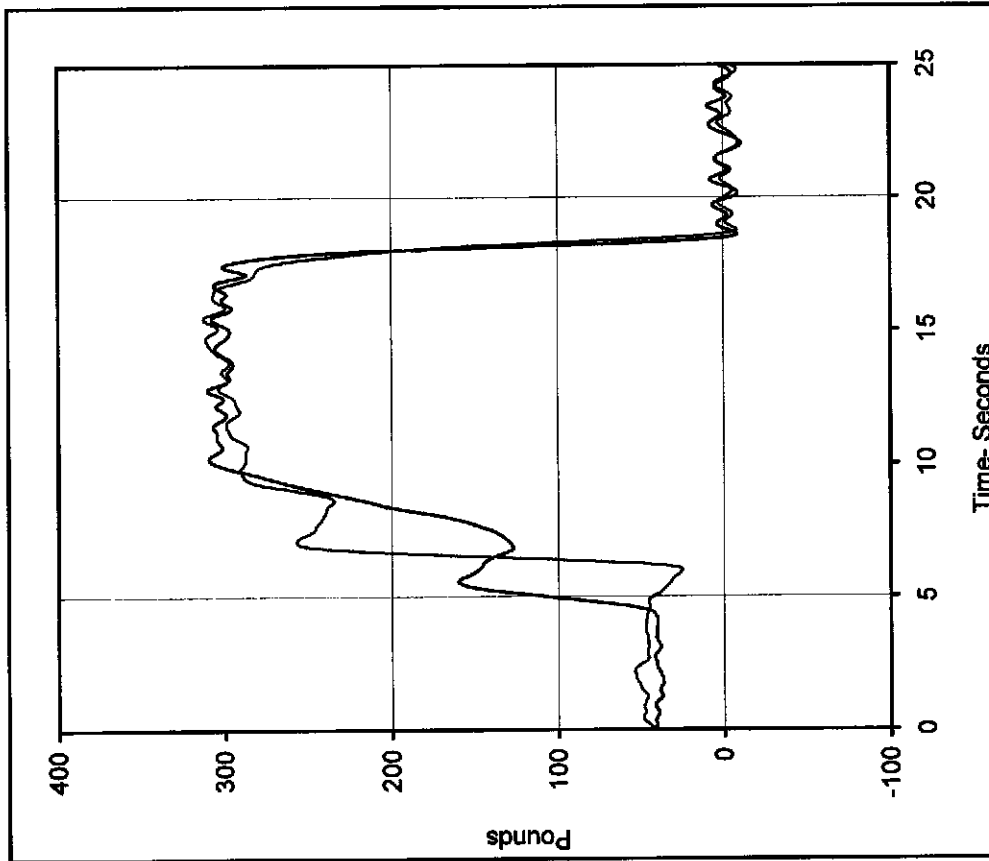


Curve Description	CURNO	Type
Passenger Seat	006	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	916.9	46.5	-6.7	54.5	1

Test Date: 8/27/04
 Project No.: C40501

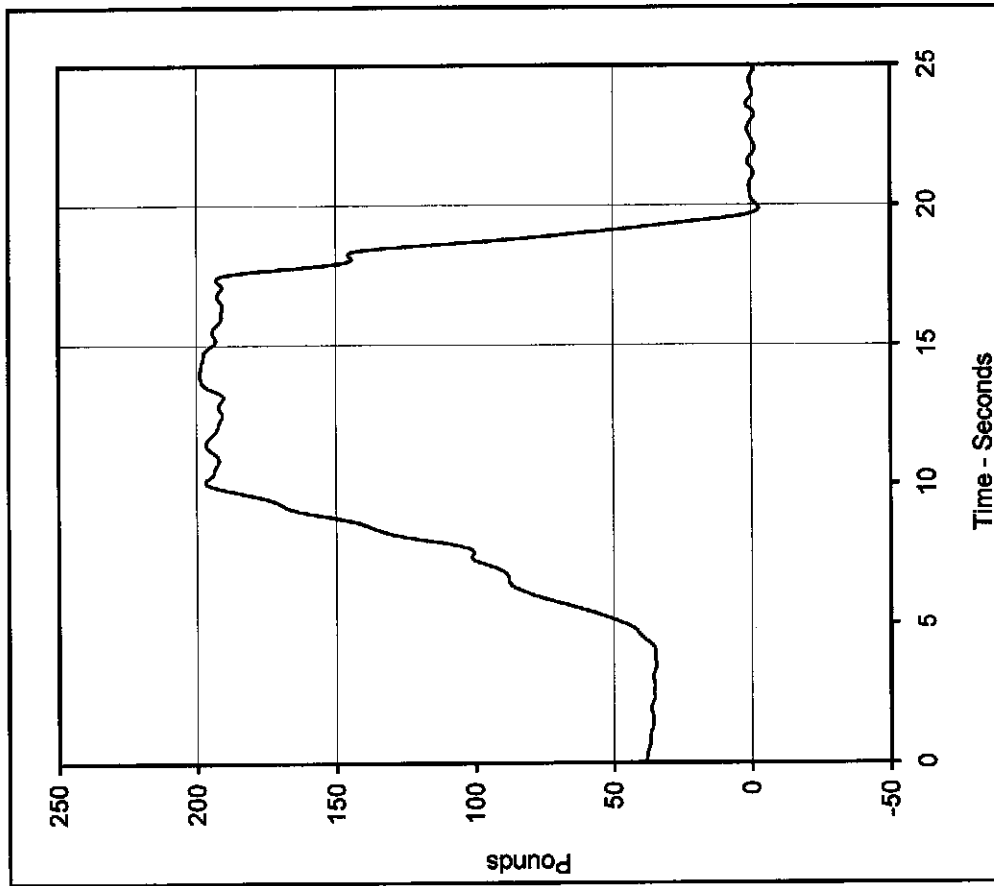




Curve Description	CURNO	Type
Left Rear Seat Back	001	FIL
Right Rear Seat Back	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	310.2	12.8	-10.8	22.0	1
Pounds	312.4	15.5	-8.9	22.1	1

Test Program: FMVSS 207 Fwd. Seat Back & Cushion (Rear)
 Test Vehicle: 2004 Mini Cooper 2-Door Coupe

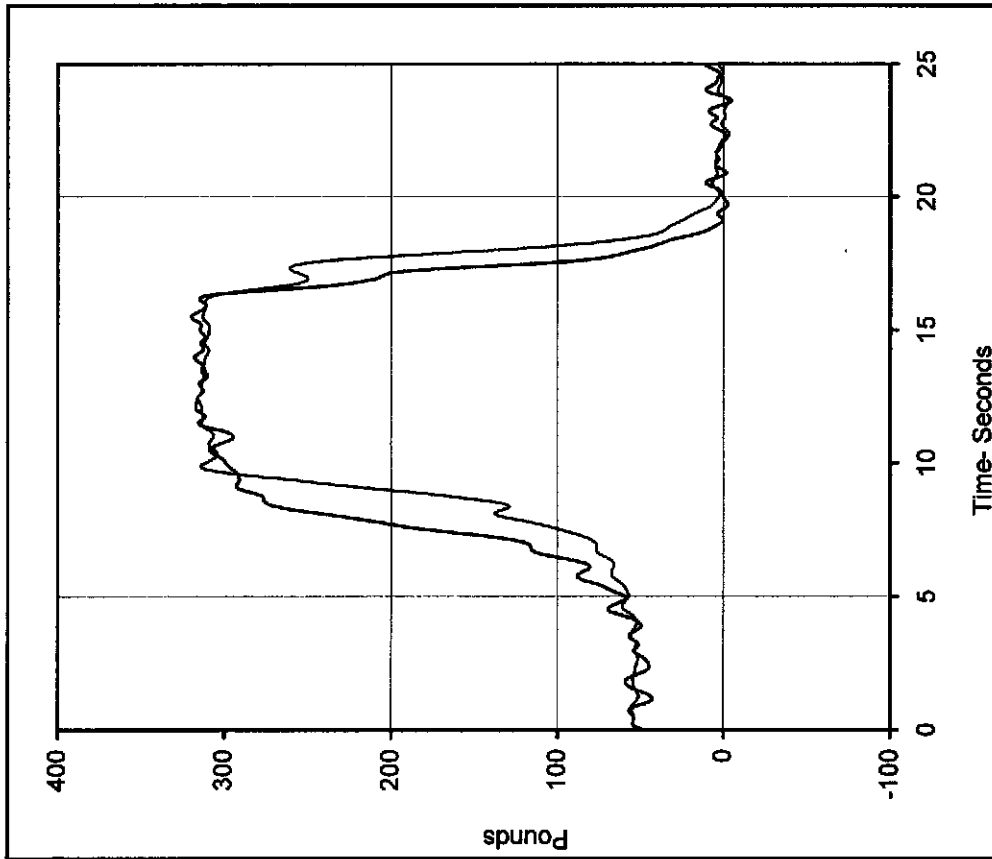


Curve Description	CURNO	Type
Rear Seat Cushion	004	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	198.8	13.9	-2.7	19.9	1

Test Date: 8/30/04
 Project No.: C40501

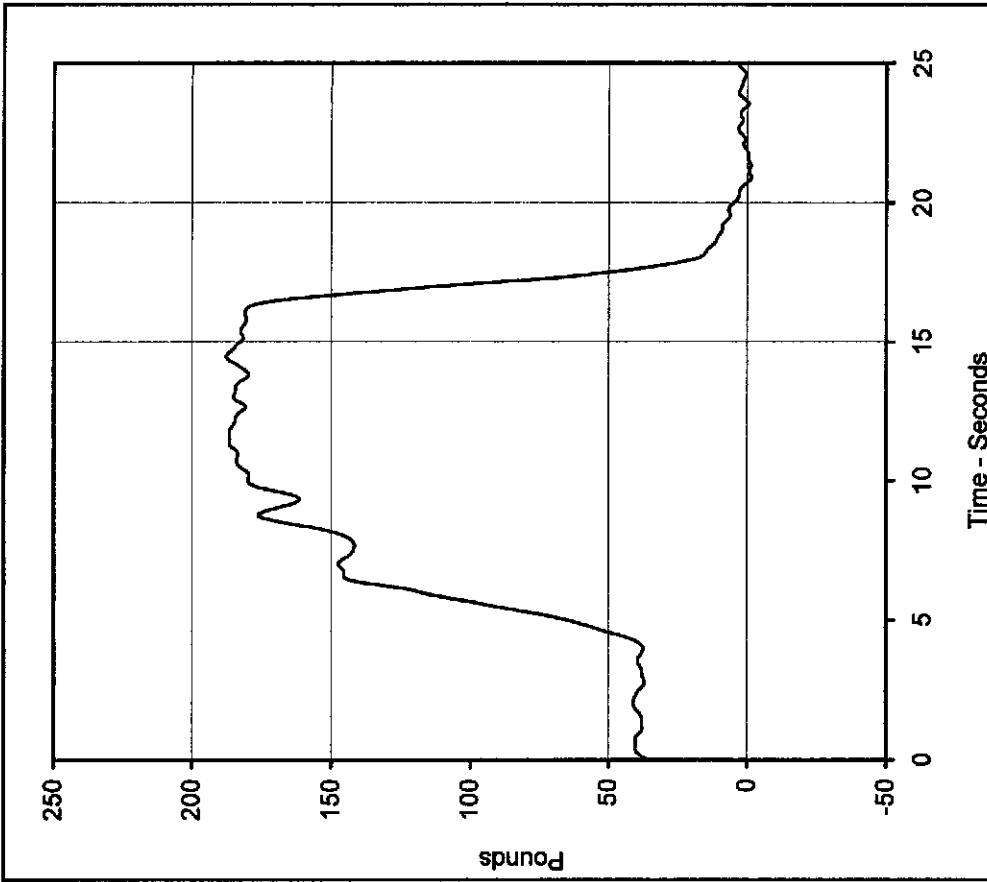




Curve Description	CURNO	Type
Left Rear Seat Back	001	FIL
Right Rear Seat Back	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	319.4	15.5	-4.8	23.6	1
Pounds	315.5	12.5	-3.2	22.4	1

Test Program: FMVSS 207 Aft Seat Back & Cushion (Rear)
 Test Vehicle: 2004 Mini Cooper 2-Door Coupe



Curve Description	CURNO	Type
Rear Seat Cushion	004	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	187.7	14.5	-1.3	20.9	1

Test Date: 8/30/04
 Project No.: C40501



APPENDIX C

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

FMVSS 207

Test Equipment List

8/23/04

2004 Mini Cooper 2-Door Coupe

Description	Manufacturer	Model No.	Serial No.	Limit	Accuracy	Cal. Date	Due Cal.
Hydraulic Pump	Lincoln	T-3825-C	2460952	8 gpm @ 2700 psi			
Computer	Panasonic	CF-71	8IMAA01852	N/A	N/A	N/A	N/A
TDAS	DTS	TDAS	DM0103	N/A	SAE J211	11/15/03	11/14/04
Load Cell	Lebow	3108	1001	300 LB	± 1.0%	5/20/04	11/18/04
Load Cell	Lebow	3132	622	500LB	± 1.0%	5/20/04	11/18/04
Load Cell	BLH	U3G1	49296	3K	± 1.0%	5/22/04	11/20/04
Load Cell	BLH	U-1C	N873	6K	± 1.0%	5/20/04	11/18/04
Load Cell	BLH	U-1C	11139	12K	± 1.0%	5/20/04	11/18/04
Load Cell	Alinco	342-E	22438-B	10K	± 1.0%	5/22/04	11/20/04
Load Cell	Alinco	342-E	22440-A	10K	± 1.0%	5/22/04	11/20/04
Load Cell	BLH	U3G1	81711A	10K	± 1.0%	5/22/04	11/20/04

